6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[OAR-2002-0059; FRL-]

RIN 2060-AG-63

National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This action promulgates national emission standards for hazardous air pollutants (NESHAP) for stationary reciprocating internal combustion engines (RICE) with a site-rating of more than 500 brake horsepower (HP). We have identified stationary RICE as major sources of hazardous air pollutants (HAP) emissions such as formaldehyde, acrolein, methanol, and acetaldehyde. The NESHAP will implement section 112(d) of the Clean Air Act (CAA) by requiring all major sources to meet HAP emission standards reflecting the application of the maximum achievable control technology (MACT) for RICE. We estimate that 40 percent of stationary RICE will be located at major sources and thus, subject to the final rule. As a result, the environmental, energy, and economic impacts presented in this preamble reflect these estimates. The final rule will protect public health by reducing exposure to air pollution,

by reducing total national HAP emissions by an estimated 5,600 tons per year (tpy) in the 5th year after the rule is promulgated. The emissions reductions achieved by these standards will provide protection to the public and achieve a primary goal of the CAA.

EFFECTIVE DATE: [INSERT DATE 60 DAYS AFTER PUBLICATION OF THIS FINAL RULE IN THE FEDERAL REGISTER]

ADDRESSES: Docket. Docket ID No. OAR-2002-0059 and Docket ID No. A-95-35 contain supporting information used in developing the standards. The dockets are located at the U.S. EPA, 1301 Constitution Avenue, NW, Washington, DC 20460 in room B102, and may be inspected from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays.

FOR FURTHER INFORMATION CONTACT: For further information concerning applicability and rule determinations, contact the appropriate State or local agency representative. For information concerning the analyses performed in developing the NESHAP, contact Mr. Sims Roy, Combustion Group, Emission Standards Division (MD-C439-01), U.S. EPA, Research Triangle Park, North Carolina 27711; telephone number (919) 541-5263; facsimile number (919) 541-5450; electronic mail address "roy.sims@epa.gov."

SUPPLEMENTARY INFORMATION: Regulated Entities. Categories and entities potentially regulated by this action include:

Category	SIC[1]	NAICS[2]	Examples of regulated entities
Any industry using a stationary RICE as defined in the final rule	4911	2211	Electric power generation, transmission, or distribution
	4922	48621	Natural gas transmission
	1311	211111	Crude petroleum and natural gas production
	1321	211112	Natural gas liquids producers
	9711	92811	National security

[1] Standard Industrial Classification
[2] North American Industry Classification System

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. To determine whether your facility is regulated by this action, you should examine the applicability criteria in §63.6585 of the final rule. If you have any questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding FOR FURTHER INFORMATION CONTACT section.

Docket. The EPA has established an official public docket for this action including both Docket ID No. OAR-2002-0059 and Docket ID No. A-95-35. The official public docket consists of the documents specifically referenced in this action, any public comments received, and other information related to this action. All items may not be listed under both docket numbers, so interested parties should inspect both docket numbers to ensure that they have received all materials relevant to the final rule. Although a part of the official docket, the public docket does not include Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. The official public docket is the collection of materials that is available for public viewing at the Air and Radiation Docket in the EPA Docket Center, (EPA/DC) EPA West, Room B102, 1301 Constitution Ave., NW, Washington, DC. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Reading Room is (202) 566-1744, and the telephone number for the Air and Radiation Docket is (202) 566-1742. A reasonable fee may be charged for copying docket materials.

Electronic Access. You may access this Federal Register document electronically through the EPA Internet under the "Federal Register" listings at http://www.epa.gov/fedrgstr/.

An electronic version of the public docket is available through EPA's electronic public docket and comment system, EPA Dockets. You may use EPA Dockets at http://www.epa.gov/edocket/ to view public comments, access the index listing of the contents of the official public docket, and to access those documents in the public docket that are available electronically. Although not all docket materials may be available electronically, you may still access any of the publicly available docket materials through the docket facility identified above. Once in the system, select "search," then key in the appropriate docket identification number.

Judicial Review. Under section 307(b)(1) of the CAA, judicial review of the final NESHAP is available only by filing a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN FEDERAL REGISTER]. Under section 307(d)(7)(B) of the CAA, only an objection to a rule or procedure raised with reasonable specificity during the period for public comment can be raised during judicial review. Moreover, under section 307(b)(2) of the CAA, the requirements established by the final rule may not be challenged separately in any civil or criminal proceeding brought to enforce these requirements.

Background Information Document. The EPA proposed the NESHAP for stationary RICE on December 19, 2002 (67 FR 77830), and received 64 comment letters on the proposal. A background information document (BID) ("National Emission Standards for Stationary Reciprocating Internal Combustion Engines, Summary of Public Comments and Responses,") containing EPA’s responses to each public comment is available in Docket ID Nos. OAR-2002-0059 and A-95-35.

Outline. The information presented in this preamble is organized as follows:

I. Background

A. <u>What is the source of authority for development of NESHAP?</u>

Section 112 of the CAA requires us to list categories and subcategories of major sources and area sources of HAP and to establish NESHAP for the listed source categories and subcategories. The stationary RICE source category was listed as a major source category on July 16, 1992 (57 FR 31576). Major sources of HAP are those that have the potential to emit greater than 10 tpy of any one HAP or 25 tpy of any combination of HAP.

B. <u>What criteria are used in the development of NESHAP?</u>

Section 112 of the CAA requires that we establish NESHAP for the control of HAP from both new and existing sources in listed source categories. The CAA requires the NESHAP to reflect the maximum degree of reduction in emissions of HAP that is achievable. This level of control is commonly referred to as the MACT.

The MACT floor is the minimum control level allowed for NESHAP and is defined under section 112(d)(3) of the CAA. In essence, the MACT floor ensures that the standard is set at a level that assures that all regulated sources achieve the level of control at least as stringent as that already achieved by the better controlled and lower emitting sources in each source category or subcategory. For new sources, the MACT standards cannot be less stringent than the emission control that is achieved in practice by the best controlled similar source. The MACT standards for existing sources can be less stringent than standards for new sources, but they cannot be less stringent than the average emission limitation achieved by the best performing 12 percent of existing sources in the category or subcategory (or the best performing five sources for categories or subcategories with fewer than 30 sources).

In developing MACT, we also consider control options that are more stringent than the floor. We may establish standards more stringent than the floor based on the consideration of cost of achieving the emissions reductions, any non-air quality health and environmental impacts, and energy requirements.

C. <u>What are the health effects associated with HAP from stationary RICE?</u>

Emission data collected during development of the NESHAP show that several HAP are emitted from stationary RICE. These HAP emissions are formed during combustion or result from HAP compounds contained in the fuel burned.

The HAP which have been measured in emission tests conducted on natural gas fired and distillate oil fired RICE include: 1,1,2,2-tetrachloroethane, 1,3-butadiene, 2,2,4-trimethylpentane, acetaldehyde, acrolein, benzene, chlorobenzene, chloroethane, ethylbenzene, formaldehyde, methanol, methylene chloride, n-hexane, naphthalene, polycyclic aromatic hydrocarbons, polycyclic organic matter, styrene, tetrachloroethane, toluene, and xylene. Metallic HAP from distillate oil fired stationary RICE that have been measured are: cadmium, chromium, lead, manganese, mercury, nickel, and selenium.

Although numerous HAP may be emitted from RICE, only a few account for essentially all of the mass of HAP emissions from stationary RICE. These HAP are: formaldehyde, acrolein, methanol, and acetaldehyde.

The HAP emitted in the largest quantities from stationary RICE is formaldehyde. Formaldehyde is a probable human carcinogen and can cause irritation of the eyes and respiratory tract, coughing, dry throat, tightening of the chest, headache, and heart palpitations. Acute inhalation has caused bronchitis, pulmonary edema, pneumonitis, pneumonia, and death due to respiratory failure. Long-term exposure can cause dermatitis and sensitization of the skin and respiratory tract.

Acrolein is a cytotoxic agent, a powerful lacrimating agent, and a severe tissue irritant. Acute exposure to acrolein can cause severe irritation or corrosion of the eyes, nose, throat, and lungs, with tearing, pain in the chest, and delayed-onset pulmonary injury with depressed pulmonary function. Chronic exposure to acrolein can cause skin sensitization and contact dermatitis. Acrolein is not considered carcinogenic to humans.

Humans are very sensitive to the toxic effects of methanol including formic acidaemia, metabolic acidosis, ocular toxicity, nervous system depression, blindness, coma, and death. A majority of the available information on methanol toxicity in humans is based on acute rather than long-term exposure. However, recent animal studies also indicate potential reproductive and developmental health consequences following chronic exposure to methanol in both mice and primates. Methanol has not been classified with respect to carcinogenicity.

The health effects for acetaldehyde are irritation of the eye mucous membranes, skin, and upper respiratory tract, and a central nervous system (CNS) depressant in humans. Acute exposure can cause conjunctivitis, coughing, difficult breathing, and dermatitis. Chronic exposure may cause heart and kidney damage, embryotoxicity, and teratogenic effects. Acetaldehyde is a probable carcinogen in humans.

We recently reviewed health effects associated with emissions of particulates from diesel engines in the context of regulating heavy duty motor vehicles and engines (66 FR 5001, January 18, 2001). Diesel particulate matter (PM) is not currently listed as a hazardous air pollutant for stationary sources under section 112 of the CAA and was not specifically reviewed under the rule, though constituent parts of diesel PM are subject to the final rule. We are continuing to review this issue in the context of regulating stationary RICE.

D. What is the regulatory development background of the source category?

In September 1996, we chartered the Industrial Combustion Coordinated Rulemaking (ICCR) advisory committee under the Federal Advisory Committee Act (FACA). The committee's objective was to develop recommendations for regulations for several combustion source categories under sections 112 and 129 of the CAA. The ICCR advisory committee, also known as the Coordinating Committee, formed Source Work Groups for the various combustor types covered under the ICCR. One work group, the RICE Work Group, was formed to research issues related to stationary RICE. The RICE Work Group submitted recommendations, information, and data analyses to the Coordinating Committee, which in turn considered them and submitted recommendations and information to EPA. The Committee's 2-year charter expired in September 1998. We considered the Committee's recommendations in developing the final rule for stationary RICE.

II. Summary of the Final Rule

A. What sources are subject to the final rule?

The final rule applies to you if you own or operate stationary RICE which are located at a major source of HAP emissions, except if your stationary RICE all have a site-rating of 500 brake HP or less. A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year.

Section 112(n)(4) of the CAA requires that the aggregation of HAP for purposes of determining whether an oil and gas production facility is major or nonmajor be done only with respect to particular sites within the source and not on a total aggregated site basis. We referenced the requirements of section 112(n)(4) of the CAA in our NESHAP for Oil and Natural Gas Production Facilities in subpart HH of 40 CFR part 63. As in subpart HH, we plan to aggregate HAP emissions for the purposes of determining a major HAP source for RICE only with respect to particular sites within an oil and gas production facility. The sites are called surface sites and may include a combination of any of the following equipment: glycol dehydrators, tanks which have potential for flash emissions, RICE, and combustion turbines.

The EPA acknowledges that the definition of major source in the final rule may be different from those found in other rules; however, this does not alter the definition of major source in other rules and, therefore, does not affect the Oil and Natural Gas Production Facilities NESHAP (subpart HH of 40 CFR part 63) or any other rule applicability.

While all stationary RICE with a site-rating of more than 500 brake HP located at major sources are subject to the final rule, there are distinct requirements for regulated stationary RICE depending on their design, use, and fuel. The standards in the final rule have specific requirements for all new or reconstructed stationary RICE and for existing spark ignition 4 stroke rich burn (4SRB) stationary RICE located at a major source of HAP emissions, except that stationary RICE with a site-rating of 500 brake HP or less are not addressed in the final rule. New or reconstructed stationary RICE which operate exclusively as emergency or limited use units are subject only to initial notification requirements. New or reconstructed stationary RICE which combust landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis are subject only to initial notification requirements and to monitoring, recording, and reporting of fuel usage requirements. With the exception of existing spark ignition 4SRB stationary RICE, other types of existing stationary RICE (i.e., spark ignition 2 stroke lean burn (2SLB), spark ignition 4 stroke lean burn (4SLB), compression ignition (CI), stationary RICE that combust landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, emergency, and limited use units) located at a major source of HAP emissions are not subject to any specific requirement under the final rule. You must determine your source’s subcategory to determine which requirements apply to your source.

The final rule does not apply to stationary RICE located at an area source of HAP emissions. An area source of HAP emissions is a contiguous site under common control that is not a major source.

Finally, the final rule does not apply to stationary RICE test cells/stands since these facilities are covered by another NESHAP, subpart PPPPP of 40 CFR part 63.

B. What source categories and subcategories are affected by the final rule?

The final rule covers stationary RICE. A stationary RICE is any RICE which uses reciprocating motion to convert heat energy into mechanical work and is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

We divided the stationary RICE source category into five subcategories: (1) stationary RICE with a site-rating of 500 brake HP or less, (2) emergency stationary RICE, (3) limited use stationary RICE, (4) stationary RICE that combust landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, and (5) other stationary RICE. We further divided the last subcategory into four subcategories: (1) 2SLB stationary RICE, (2) 4SLB stationary RICE, (3) 4SRB stationary RICE, and (4) CI stationary RICE.

The final rule does not apply to stationary RICE test cells/stands since these facilities are covered by another NESHAP, subpart PPPPP of 40 CFR part 63.

The final rule also does not apply to stationary RICE with a site-rating of 500 brake HP or less. In reviewing the population database to identify stationary RICE with a site-rating of 500 brake HP or less, we found extremely little information. In discussions with State and local permitting officials, the manufacturers, and some of the owners and operators of stationary RICE, we found that such small stationary RICE have generally not been regarded as significant sources of air pollutant emissions. As a result, the small stationary RICE have not been subjected to the same level of scrutiny, examination, or review as larger stationary RICE. Little information has been gathered or compiled by anyone for this subcategory of stationary RICE.

Thus, at this point, we know very little about stationary RICE with a site-rating of 500 brake HP or less. For example, we do not know how many of the small stationary RICE exist. In addition, we know little about the operating characteristics and emissions, the current use of, as well as the applicability of, emission control technologies, the costs of emission control for the small stationary RICE, or the economic impacts and benefits associated with regulation. In the absence of such information, we have concerns with the applicability of HAP emission control technology to these stationary RICE. As a result, we feel it is appropriate to defer a decision on regulation of stationary RICE with a site-rating of 500 brake HP or less until further information on the engines can be obtained and analyzed.

We feel this subcategory of stationary RICE is likely to be more similar to stationary RICE located at area sources than to stationary RICE located at major sources. Thus, we plan to include this subcategory of stationary RICE in our considerations to develop regulations for stationary RICE located at area sources.

C. What are the primary sources of HAP emissions and what are the emissions?

The primary sources of HAP emissions are exhaust gases from combustion of gaseous fuels and liquid fuels in stationary RICE. Formaldehyde, acrolein, methanol, and acetaldehyde are HAP that are present in significant quantities from stationary RICE.

D. What are the emission limitations and operating limitations?

As the owner or operator of an affected source, you must do one of the following: (1) each existing, new, or reconstructed 4SRB stationary RICE must comply with each emission limitation in Table 1(a) of subpart ZZZZ, 40 CFR part 63, and each operating limitation in Table 1(b) of subpart ZZZZ that apply; or (2) each new or reconstructed 2SLB stationary RICE, new or reconstructed 4SLB stationary RICE, or new or reconstructed CI stationary RICE must comply with each emission limitation in Table 2(a) of subpart ZZZZ and operating limitation in Table 2(b) of subpart ZZZZ that apply. These tables can be found after the definitions in §63.6675 of subpart ZZZZ.

Existing 2SLB stationary RICE, existing 4SLB stationary RICE, existing CI stationary RICE, stationary RICE that operate exclusively as emergency or limited use units, or stationary RICE that combust landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis have an emission standard of no emission reduction, and will not be tested to meet any specific emission limitation or operating limitation. In addition, any stationary RICE located at an area source of HAP emissions, any stationary RICE with a site-rating of 500 brake HP or less, or stationary RICE that are being tested at stationary RICE test cells/stands are not addressed in the final rule and, therefore, do not need to comply with any emission limitation or operating limitation.

E. What are the initial compliance requirements?

If your stationary RICE must meet specific emission limitations and operating limitations, then you must meet the following initial compliance requirements. The testing and initial compliance requirements are different, depending on whether you demonstrate compliance with the carbon monoxide (CO) emission reduction requirement, formaldehyde emission reduction requirement, or the requirement to limit the formaldehyde concentration in the stationary RICE exhaust.

If you own or operate a 2SLB or 4SLB stationary RICE or a CI stationary RICE complying with the requirement to reduce CO emissions, you must conduct an initial performance test to demonstrate that you are achieving the required CO percent reduction, corrected to 15 percent oxygen, dry basis. The initial performance test must be conducted at high load conditions, defined as 100 percent ±10 percent.

If you own or operate a 2SLB or 4SLB stationary RICE or a CI stationary RICE complying with the requirement to reduce CO emissions and you are using an oxidation catalyst, you must also install a continuous parameter monitoring system (CPMS) to continuously monitor the catalyst inlet temperature. During the initial performance test, you must record the initial pressure drop across the catalyst and the catalyst inlet temperature.

If you own or operate a 2SLB or 4SLB stationary RICE or a CI stationary RICE complying with the requirement to reduce CO emissions and you are not using an oxidation catalyst, you must also petition the Administrator for approval of operating limitations or approval or no operating limitations. You must also install a CPMS to continuously monitor the operating parameters (if any) approved by the Administrator. During the initial performance test, you must record the initial values of the approved operating parameters (if any).

As an alternative, you may elect to install a continuous emissions monitoring system (CEMS) to measure CO and either carbon dioxide or oxygen simultaneously at the inlet and outlet of the oxidation catalyst. To demonstrate initial compliance, you must conduct an initial performance evaluation using Performance Specifications (PS) 3 and 4A of 40 CFR part 60, appendix B. The initial performance test must be conducted at high load conditions, defined as 100 percent ±10 percent. You must demonstrate that the reduction of CO emissions meets the required percent reduction using the first 4-hour average after a successful performance evaluation. Your measurements at the inlet and the outlet of the oxidation catalyst must be on a dry basis and corrected to 15 percent oxygen or equivalent carbon dioxide content.

If you own or operate 4SRB stationary RICE complying with the requirement to reduce formaldehyde emissions, you must conduct an initial performance test using Test Method 320 or 323 of 40 CFR part 63, appendix A, or ASTM D6348-03 to demonstrate that you are achieving the required formaldehyde percent reduction, corrected to 15 percent oxygen, dry basis. The initial performance test must be conducted at high load conditions, defined as 100 percent ±10 percent.

If you own or operate a 4SRB stationary RICE complying with the requirement to reduce formaldehyde emissions and you are using non-selective catalytic reduction (NSCR), you must also install a CPMS to continuously monitor the catalyst inlet temperature. During the initial performance test, you must record the initial values of the pressure drop across the catalyst and the catalyst inlet temperature.

If you own or operate a 4SRB stationary RICE complying with the requirement to reduce formaldehyde emissions and you are not using NSCR, you must also petition the

Administrator for approval of operating limitations or approval or no operating limitations. You must also install a CPMS to continuously monitor the operating parameters (if any) approved by the Administrator. During the initial performance test, you must record the initial values of the approved operating parameters (if any).

If you are complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust, you must conduct an initial performance test using Test Method 320 or 323 of 40 CFR part 63, appendix A, or ASTM D6348-03 to demonstrate that the concentration of formaldehyde in the stationary RICE exhaust is less than or equal to the emission limit, corrected to 15 percent oxygen, dry basis, that applies to you. To correct to 15 percent oxygen, dry basis, you must measure oxygen using Method 3A or 3B of 40 CFR part 60, appendix A, and measure moisture using Method 4 of 40 CFR part 60, appendix A; or Test Method 320 of 40 CFR part 63, appendix A; or ASTM D6348-03. The initial performance test must be conducted at high load conditions, defined as 100 percent ±10 percent.

If you own or operate a 2SLB or 4SLB stationary RICE or a CI stationary RICE complying with the emission limitation to limit the concentration of formaldehyde in the stationary RICE exhaust and you are using an oxidation catalyst or if you own or operate a 4SRB stationary RICE complying with the emission limitation to limit the concentration of formaldehyde in the stationary RICE exhaust and you are using NSCR, you must also install a CPMS to continuously monitor the catalyst inlet temperature. During the initial performance test, you must record the initial pressure drop across the catalyst and the catalyst inlet temperature.

If you choose to comply with the emission limitation to limit the concentration of formaldehyde in the stationary RICE exhaust and you are not an using oxidation catalyst or NSCR, you must also petition the Administrator for approval of operating limitations or approval of no operating limitations. If the Administrator approves your petition for operating limitations, the operating limitations must also be established during the initial performance test.

If you petition the Administrator for approval of operating limitations, your petition must include the following: (1) identification of the specific parameters you propose to use as operating limitations; (2) a discussion of the relationship between the parameters and HAP emissions, identifying how HAP emissions change with changes in the parameters, and how limitations on the parameters will serve to limit HAP emissions; (3) a discussion of how you will establish the upper and/or lower values for the parameters which will establish the limits on the parameters in the operating limitations; (4) a discussion identifying the methods you will use to measure and the instruments you will use to monitor the parameters, as well as the relative accuracy and precision of the methods and instruments; and (5) a discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring the parameters.

If you petition the Administrator for approval of no operating limitations, your petition must include the following: (1) identification of the parameters associated with operation of the stationary RICE and any emission control device which could change intentionally (e.g., operator adjustment, automatic controller adjustment, etc.) or unintentionally (e.g., wear and tear, error, etc.) on a routine basis or over time; (2) a discussion of the relationship, if any, between changes in the parameters and changes in HAP emissions; (3) for those parameters with a relationship to HAP emissions, a discussion of whether establishing limitations on the parameters would serve to limit HAP emissions; (4) for those parameters with a relationship to HAP emissions, a discussion of how you could establish upper and/or lower values for the parameters which would establish limits on these parameters in operating limitations; (5) for the parameters with a relationship to HAP emissions, a discussion identifying the methods you could use to measure the parameters and the instruments you could use to monitor them, as well as the relative accuracy and precision of the methods and instruments; (6) for the parameters, a discussion identifying the frequency and methods for recalibrating the instruments you could use to monitor them; and (7) a discussion of why, from your point of view, it is infeasible or unreasonable to adopt the parameters as operating limitations.

F. What are the continuous compliance provisions?

Several general continuous compliance requirements apply to all stationary RICE meeting various specified emission and operating limitations. If your stationary RICE is required to meet specific emission and operating limitations, then you are required to comply with the emission and operating limitations at all times, except during startup, shutdown, and malfunction of your stationary RICE. You must also operate and maintain your stationary RICE, air pollution control equipment, and monitoring equipment according to good air pollution control practices at all times, including startup, shutdown, and malfunction. You must conduct all monitoring at all times that the stationary RICE is operating, except during periods of malfunction of the monitoring equipment or necessary repairs or quality assurance or control activities, such as calibration checks.

For 2SLB and 4SLB stationary RICE and CI stationary RICE complying with the requirement to reduce CO emissions, unless you are using a CEMS, you must conduct semiannual performance tests for CO and oxygen using a portable CO monitor to demonstrate that the required CO percent reduction is achieved. The performance tests must be conducted at high load conditions, defined as 100 percent ±10 percent. If you demonstrate compliance with the percent reduction requirement for two successive performance tests, you may reduce the frequency of performance testing to annually. However, if an annual performance test indicates a deviation from the percent reduction requirement, you must return to semiannual performance tests.

If you are using an oxidation catalyst, you must continuously monitor and record the catalyst inlet temperature to demonstrate continuous compliance with the CO percent reduction requirement. The 4-hour rolling average of the valid data must be within the operating limitation. You must also measure the pressure drop across the catalyst monthly. If you replace your oxidation catalyst, you must reestablish your pressure drop and catalyst inlet temperature.

If you are not using an oxidation catalyst, you must continuously monitor and record the operating parameters (if any) approved by the Administrator to demonstrate continuous compliance with the CO percent reduction requirement. The 4-hour rolling average of the valid data must be within the operating limitation.

If you elect to demonstrate continuous compliance using a CEMS, you must calibrate and operate your CEMS according to the requirements in 40 CFR 63.8. You must continuously monitor and record the CO concentration at the inlet and outlet of the oxidation catalyst and calculate the percent reduction of CO emissions hourly. The reduction of CO must be at least the required percent reduction, based on a rolling 4-hour average, averaged every hour. You must also conduct an annual relative accuracy test audit (RATA) of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B, as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.

For existing, new, or reconstructed 4SRB stationary RICE complying with the requirement to reduce formaldehyde emissions using NSCR, you must demonstrate continuous compliance by continuously monitoring the catalyst inlet temperature. The 4-hour rolling average of the valid data must be within the operating limitation. You must also measure the pressure drop across the catalyst monthly. If you replace your NSCR, you must reestablish the values of the pressure drop across the catalyst and the catalyst inlet temperature.

For existing, new, or reconstructed 4SRB stationary RICE complying with the requirement to reduce formaldehyde emissions and not using NSCR, you must continuously monitor and record the operating parameters (if any) approved by the Administrator. The 4-hour rolling average of the valid data must be within the operating limitation.

The 4SRB stationary RICE with a site-rating greater than or equal to 5,000 brake HP must also conduct semiannual performance tests to demonstrate that the percent reduction for formaldehyde emissions is achieved. The performance tests must be conducted at high load conditions, defined as 100 percent ±10 percent. If you demonstrate compliance with the percent reduction requirement for two successive performance tests, you may reduce the frequency of performance testing to annually. However, if an annual performance test indicates a deviation from the percent reduction requirement, you must return to semiannual performance tests.

If you are complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust, the following requirements must be met.

Proper maintenance. At all times, the owner or operator shall maintain the monitoring equipment including, but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.

Continued operation. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation at all times that the unit is operating. Data recorded during monitoring malfunctions, associated repairs, out-of-control periods, and required quality assurance or control activities shall not be used for purposes of calculating data averages. The owner or operator shall use all the data collected during all other periods in assessing compliance. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring equipment to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. Any period for which the monitoring system is out of control and data are not available for required calculations constitutes a deviation from the monitoring requirements.

After completion of the initial performance test, you must demonstrate that formaldehyde emissions remain at or below the formaldehyde concentration limit by performing semiannual performance tests. The performance tests must be conducted at high load conditions, defined as 100 percent ±10 percent. If you demonstrate compliance with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust for two successive performance tests, you may reduce the frequency of performance testing to annually. However, if an annual performance test indicates a deviation of formaldehyde emissions from the formaldehyde concentration limit, you must return to semiannual performance tests.

If you choose to comply with the emission limitation to limit the concentration of formaldehyde in the stationary RICE exhaust and you are using an oxidation catalyst or NSCR, you must demonstrate continuous compliance by continuously monitoring the catalyst inlet temperature. The 4-hour rolling average of the valid data must be within the operating limitation. You must also measure the pressure drop across the catalyst monthly. If you replace your oxidation catalyst or NSCR, you must reestablish the values of the pressure drop across the catalyst and the catalyst inlet temperature.

If you choose to comply with the emission limitation to limit the concentration of formaldehyde in the stationary RICE exhaust and you are not using an oxidation catalyst or NSCR, you must demonstrate continuous compliance by continuously monitoring and recording the values of any parameters which have been approved by the Administrator as operating limitations.

G. <u>What are the notification, recordkeeping and reporting requirements?</u>

If you own or operate a stationary RICE with a site-rating of more than 500 brake HP which is located at a major source of HAP emissions, you must submit all of the applicable notifications as listed in the NESHAP General Provisions (40 CFR part 63, subpart A), including an initial notification, notification of performance test or evaluation, and a notification of compliance for each stationary RICE which must comply with the specified emission and operating limitations. In addition, you must submit an initial notification for each existing 4SRB stationary RICE and each new stationary RICE which operates exclusively as an emergency unit, limited use unit, or a stationary RICE which combusts digester gas or landfill gas equivalent to 10 percent or more of the gross heat input on an annual basis.

You must record all of the data necessary to determine if you are in compliance with the emission limitations and operating limitations (if applicable) as required by the final rule. Your records must be in a form suitable and readily available for review. You must also keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. Records must remain on-site for at least 2 years and then can be maintained off-site for the remaining 3 years.

You must submit a compliance report semiannually. This report should contain information including company name and address, a statement by a responsible official that the report is accurate, and a statement of compliance or documentation of any deviation from the requirements of the final rule during the reporting period.

III. Summary of Significant Changes Since Proposal

Most of the rationale used to develop the proposed rule remains the same for the final rule. Therefore, the rationale previously provided in the proposed rule is not repeated in the final rule and the Rationale for Selecting the Proposed Standards section of the proposed rule should be referred to. Changes that have been made to the final rule are discussed in this section with rationale following in the Summary of Responses to Major Comments section.

A. Emission Limitations

In the proposed NESHAP, new 2SLB stationary RICE were required to either reduce CO emissions by 60 percent or more, or limit the concentration of formaldehyde to 17 parts per million by volume dry basis (ppmvd) or less at 15 percent oxygen. Existing and new 4SRB stationary RICE were required to either reduce formaldehyde emissions by 75 percent or more, or limit the concentration of formaldehyde to 350 parts per billion by volume dry basis (ppbvd) or less at 15 percent oxygen. The final rule requires new 2SLB stationary RICE to either reduce CO emissions by 58 percent or more, or limit the concentration of formaldehyde to 12 ppmvd or less at 15 percent oxygen. Existing and new 4SRB stationary RICE must either reduce formaldehyde emissions by 76 percent or more, or limit the concentration of formaldehyde to 350 ppbvd or less at 15 percent oxygen.

In the proposed rule, sources were required to meet one of two emission limitations, depending on the type of control device being used. In the final rule, we have allowed sources the flexibility to meet either emission limitation, regardless of the type of emission control.

B. Operating Limitations

We have made several revisions to the operating limitations that we proposed. The minimum value for the catalyst inlet temperature for new 2SLB, new 4SLB, and new CI stationary RICE complying with the requirement to reduce CO emissions and using an oxidation catalyst has decreased from 500°F to 450°F and the maximum value has increased from 1250°F to 1350°F. For 4SRB stationary RICE, we have removed the requirement to maintain the temperature rise across the catalyst. For stationary RICE complying with the requirement to limit the concentration of formaldehyde, we have removed the proposed requirement to maintain either an operating load or fuel flow rate equal to or greater than 95 percent of the value established during the initial performance test.

C. Testing and Monitoring

In the final rule, we did not include EPA SW-846 Method 0011 or California Air Resources Board (CARB) Method 430 as appropriate methods for measuring formaldehyde. We also specified that performance testing should be conducted at high load, defined as 100 ±10 percent. In the final rule, we have included ASTM D6348-03 as an acceptable method for formaldehyde and moisture.

The proposed rule required new 2SLB, new 4SLB, and new CI stationary RICE with a brake HP greater than or equal to

5,000 complying with the CO emission reduction requirement to install a CEMS to continuously monitor CO, whereas those with a brake HP less than 5,000 demonstrated compliance with continuous parametric monitoring and quarterly CO performance testing. The final rule requires that new 2SLB, new 4SLB, and new CI engines use continuous parametric monitoring and semiannual CO performance testing to demonstrate continuous compliance. Sources may still elect to use a CO CEMS, but it is not required.

In the final rule, we specified that the pressure drop across the catalyst must be measured monthly for sources complying with the requirement to reduce CO emissions and using an oxidation catalyst and for sources complying with the requirement to reduce formaldehyde emissions and using NSCR, instead of continuously monitored as specified in the proposed rule.

D. Other

The proposed rule specified that stationary RICE that combust landfill gas or digester gas as primary fuel did not have to meet the requirements of the rule, except for initial notification requirements. In the final rule, we redefined the subcategory as those engines with annual landfill gas or digester gas consumption of 10 percent or more of the gross heat input on an annual basis. We have specified that new and reconstructed stationary RICE with annual landfill gas or digester gas consumption of 10 percent or more have to submit an initial notification and must also meet monitoring, recording, and reporting requirements associated with fuel usage. Existing stationary RICE with annual landfill gas or digester gas consumption of 10 percent or more do not have to meet any requirements.

The definition of emergency and limited use stationary RICE has been separated in the final rule. Limited use stationary RICE means any stationary RICE that operates less than 100 hours per year.

The definition of emergency stationary RICE was written to indicate that loss of power that constitutes an emergency can include power supplied to portions of a facility, and that emergency operation is not limited to only times when the primary power source has been interrupted and is not limited to a specific number of hours. Routine testing and maintenance to ensure operational readiness has been included in the definition of emergency operation.

We included a provision in the final rule allowing new or rebuilt engines to operate for up to 200 hours prior to installing the catalyst; this will not be considered a violation.

In the final rule, we specified that an existing area source that increases its emissions or its potential to emit such that it becomes a major source must be in compliance within 3 years after becoming a major source. Potential to emit is defined in §63.6675 of the final stationary RICE NESHAP. The proposed rule stipulated that an existing area source that became a major source must be in compliance immediately after becoming a major source.

IV. Summary of Responses to Major Comments

A more detailed summary of comments and our responses can be found in the Summary of Public Comments and Responses document, which is available from several sources (see Addresses section).

A. Applicability

Comment: One commenter requested clarification on what is considered an existing RICE unit for purposes of compliance. According to the commenter, using a date as a determination whether an engine is existing is confusing. The commenter stated that an engine takes on its identity when first assembled into an engine or when modified to be a different kind of engine, regardless of where that engine is ultimately installed or whether it is a spare on the shelf awaiting installation. Another commenter asked that EPA clarify that an existing RICE unit is any engine that was assembled as a final unit before December 19, 2002, regardless of whether it was or has been installed in a stationary location.

One commenter stated that the criteria that makes a RICE unit affected by the proposed rule does not limit the rule's effects to only units that operate. The proposed factors that determine applicability are construction date, site-rating, and specific inherent designs of units. None of these criteria as applied in the proposal include a requirement that the engine be operational. It is not uncommon for an owner or operator to have idle engines. Some may be installed and not in use. Others may be stored for later use as replacements or spare engines. Importantly, idle units are distinct from emergency units because an idle unit is not in any use. The commenter expressed that an idle RICE unit should have no compliance obligations imposed by the final RICE rule.

Response: We disagree with the first set of comments and feel that the date an engine was constructed is the date it was installed at the operator site and not when it was assembled as a final unit at the manufacturer. Thus, any engine constructed (i.e., installed at the site of the operator) prior to December 19, 2002, is an existing engine for purposes of the final rule, while any engine constructed on or after that date is a new engine. For purposes of the final rule, the term "on-site fabrication" in the definition of construction in 40 CFR §63.2 shall refer to the final installation at the site of the final operator. This definition of construction is in line with how EPA generally defines construction, i.e., it is defined by when the unit is installed at the operator's location, rather than where it is first assembled.

We feel it is appropriate to define "on-site fabrication" as the final site of installation because even after a unit has been manufactured, several components necessary in order to be able to operate the unit must be considered and added. The owner or operator cannot go directly from purchasing the unit from the manufacturer to operation. The owner or operator must typically have a building to house the unit in, construct a pad for the unit, run utilities, install fuel supply tanks or run the natural gas line, have the catalyst vendor install the pollution control equipment, and finally test the unit on-site. For larger engines (e.g., 5,000 HP or greater), the installation process is even more pronounced. For these reasons, we find it appropriate that the date that final installation of the unit at the site of operation is commenced should be considered the construction date.

Engines manufactured prior to December 19, 2002, but where installation was not commenced until after that date, are considered new engines and must comply with the requirements for new engines. We expect that these units will be able to comply with the requirements especially since the control equipment is typically installed on the engine at the site of operation and does not come with the engine purchased from the manufacturer. Finally, no problems are expected to occur with retrofit controls because the control technology is relatively easy to retrofit, especially in units that are being installed initially at a site. If owners or operators anticipate problems, they can elect to purchase a new engine meeting the requirements if it is installed after that date.

With regard to the next comment, we disagree with the commenter’s proposition that EPA needs to have a special provision to deal with engines that are installed but not in use. For new engines covered by the final rule, which will be the vast majority of the engines, the final rule does not apply until startup of the engine, which is when the engine begins operation. Therefore, new engines are not covered until they are operational, which already accomplishes the goal of the commenter. For existing engines, we feel that any engine that does not meet the definition of limited use engine, which includes any engine that operates less than 100 hours per year, should not be relieved of compliance obligations. We have written our definitions to distinguish emergency engines from limited use engines, which should reduce some confusion. An engine that does not operate at all is clearly a limited use engine, which by definition includes engines that operate 0 hours per year.

Comment: Several commenters expressed that EPA should include an alternative applicability criteria based on 1 tpy actual formaldehyde emissions.

Response: The basis for this comment is the Oil and Natural Gas Production and Natural Gas Transmission and Storage NESHAP (promulgated on June 17, 1999). In that rule, HAP emissions from process vents at glycol dehydration units that are located at major HAP sources and from process vents at certain area source glycol dehydration units are required to be controlled unless the actual flowrate of natural gas in the unit is less than 85,000 cubic meters per day (3.0 million standard cubic feet per day), on an annual average basis, or the benzene emissions from the unit are less than 0.9 megagrams per year (1 tpy). The 1 tpy emission threshold in the Oil and Natural Gas Production and Natural Gas Transmission and Storage MACT is equivalent to the smallest size glycol dehydration unit with control of

HAP emissions and is, therefore, based on equivalence, not risk. The information in the docket does not support a decision to provide an alternative applicability cutoff in this case. Our decision to defer regulation of engines 500 HP or less was based on questions regarding how accurately the database reflected such engines. There were no such concerns raised based on whether an engine emitted formaldehyde above 1 tpy.

Comment: Five commenters stated that the applicability limit for 2SLB should be increased to 1100 HP to be consistent with the MACT floor. One commenter stated that the small engine size cutoff should be changed from 500 HP to 650 HP. The commenter said that while EPA appropriately reasoned that small engines should not be subject to the requirements of the rule, EPA provided no explicit rationale for the selection of 500 HP as the appropriate small engine size cutoff. Ranking all engines in EPA’s database from smallest to largest, the first engine size that has controls is 650 HP. Thus, the appropriate small engine size cutoff supported by the record is less than 650 HP instead of less than or equal to 500 HP.

Response: First, we need to clarify that engines 500 brake HP or less have not been exempted from regulation. Because we determined at the time of proposal that we did not have enough information to go forward with regulation of those engines at this time, we have deferred regulatory activity with regard to those engines. Pursuant to a consent decree signed on May 22, 2003, Sierra Club v. Whitman, Case Number 1:01CV01537 (D.C.D.C), a notice of proposed rulemaking regarding regulation of these engines under CAA section 112 is scheduled for October 31, 2006, with a final rule by December 20, 2007. At this time, it would be inappropriate to speculate on what level of control would be promulgated for these engines.

We are aware of stationary engines as small as 650 HP that are equipped with add-on HAP control devices. We feel our database represented the population of engines between 500 HP and 1100 HP reasonably well, so we do not feel it is appropriate to defer regulation of these engines to a later rule. Therefore, we do not feel it is appropriate to defer the regulation of engines up to 1100 HP for 2SLB engines, or to include such engines in a separate subcategory. Although 650 HP is the smallest size unit that is known to have add-on HAP control, we feel it is appropriate to limit the deferral to engines 500 HP or less because the control technology used for 650 HP units can be transferred to units at least as small as 500 HP in size. Oxidation catalyst technology is not limited to engines greater than 650 HP in size. In fact, information received during the public comment period supports our conclusion, where several engines rated at 400 HP were equipped with oxidation catalyst control. Our deferral of engine regulation was based on the type of engines used below 500 HP and whether our database was adequate for such engines. We feel our database for engines above 500 HP was adequate and that, in any case, the final rule for these engines is adequately justified in the record. The commenter does not adequately provide particular reasons to justify placing engines between 500 and 650 HP in a different subcategory from larger engines, and we do not feel such subcategorization has been shown to be appropriate.

Comment: One commenter asserted that the rule should be more explicit as to whether the 500 HP capacity level for exception from the rule and 5,000 HP capacity level for enhanced monitoring applies to an individual engine or applies to the aggregate capacity of a group of engines.

Response: We intended for the 500 HP capacity level to apply to an individual engine, not the aggregate capacity of a group of engines. Similarly, the 5,000 HP capacity level for enhanced monitoring was intended to apply to an individual engine. However, we have not included a CO CEMS requirement in the final rule. Sources are free to use CO

CEMS to demonstrate compliance; however, CO CEMS are not required.

Comment: One commenter contended that the MACT should consider exempting any RICE using landfill gas. A diesel engine can operate at a landfill in a dual fuel mode using fuel oil and landfill gas. Tests have shown that a catalytic converter cannot be used because of siloxanes in the landfill gas, even if the engine operates with more than half the energy being supplied by the liquid fuel.

Response: In the proposed rule, we established a subcategory for landfill or digester gas fired units and defined the subcategory as those stationary RICE that combust digester gas or landfill gas as the primary fuel. In the proposed rule, these units did not have to meet any emission limitation requirements but were subject to the initial notification requirements. We agree with the commenters supporting the proposed approach to landfill and digester gas fired engines. We agree that neither control technology, fuel switching, or other practices would be an appropriate or workable strategy for reducing HAP from these engines. We agree with the commenter that problems will occur when using landfill gas because of siloxanes in the fuel, even if the engine operates with more than half the energy being supplied by the liquid fuel. Therefore, we contacted sanitation districts and catalyst vendors for information. Based on the information obtained, we feel that firing greater than 10 percent landfill gas or digester gas will cause fouling of the oxidation catalyst, rendering the control device inoperable within a short period of time. All the sources we contacted indicated that there would be problems associated with catalyst deactivation due to siloxanes present in landfill gas and digester gas. Information regarding landfill and digester gas is presented in a memorandum included in the rule docket (Docket ID Nos. OAR-2002-0059 and A-95-35). While most units will operate using landfill or digester gas consumption above 50 percent of the time, there are times when such units may need to operate significantly below 50 percent landfill or digester gas consumption. We feel a cut-off level of 10 percent of gross heat input is an appropriate level for defining these units, because operation below that percentage raises significant questions regarding whether the unit is still appropriately considered to be operating as a landfill or digester gas burning unit, and would raise concerns regarding circumvention of the requirements for other new units. In the final rule, we have redefined the subcategory as those engines with annual landfill gas or digester gas consumption of 10 percent or more of the gross heat input on an annual basis. New and reconstructed engines in this subcategory must only comply with limited requirements of the final rule. Engines with an annual landfill gas or digester gas consumption of less than 10 percent of the gross heat input on an annual basis are subject to applicable emission limitations of the final rule in addition to other requirements.

Comment: Multiple commenters stated that a limited use category with a capacity utilization of 10 percent or less (876 or fewer hours of annual operation) should be included. One commenter suggested using a flat annual threshold level of 1,000 hours per year in lieu of 10 percent usage. Another commenter recommended that the category include all units, not only peak shaving units. Several commenters argued that the 50 hours per year may not be sufficient. Some commenters noted that testing and maintenance should be included and not counted towards the 50 hours per year. Two commenters recommended at least 250 hours per year. One commenter recommended a 52 hour limit for routine maintenance and testing, then have no limit for true emergency use. Similarly, other commenters expressed that since routine or unscheduled maintenance and testing could require unknown time to complete, there should be no time limits on the use of emergency stationary RICE. Several commenters suggested 100 hours per year for emergency generators. One commenter stated that the subcategory should be redefined to include RICE that operate less than 500 hours per year. Two commenters remarked that setting this exemption at 50 hours per year down from the 100 or 200 hours per year commonly seen in many State air pollution regulations, could have the net effect of increasing pollution by not allowing sufficient operating time for the engine to burn off hard deposits. Several commenters stated that the limited use definition for RICE should be separated from the emergency power definition since these are really different applications. Two commenters stated that the operation of emergency power units should not be limited to only those times when the primary power source has been interrupted, but rather not time-restricted at all, providing the primary design purpose of the unit is to provide emergency backup services, fire water, etc. One commenter asked that EPA clarify the definition of emergency/limited use engines as to whether loss power that constitutes an emergency is limited to power supplied to the facility as a whole or includes power supplied to portions of the facility. One commenter suggested that EPA revise the definition of emergency power RICE to clarify the intent of the rule as the current definition does not adequately encompass the wide array of emergency uses of engines. One commenter felt that the description of an emergency engine is too restrictive. The emergency use description should describe more power loss emergencies than those affecting an entire facility at once. The definition should also include uses for additional emergency types beyond power loss emergencies, e.g., fuel and raw material curtailments or fuel shortage emergencies applied by governments, utilities, or other suppliers may require the need to temporarily operate an engine, or some equipment may be operated to fight fires (firewater pumps). Neither of these examples represent loss of power, but are still unplanned events. One commenter stated that the definition should be clarified, or extended, to allow for operations in anticipation of an emergency situation. One commenter remarked that this class of RICE (engines having a capacity utilization of less than 10 percent) would operate mostly in the summer months when the public is more likely to be impacted by the emissions. Acetaldehyde, acrolein, and formaldehyde all have documented short-term acute health effects. The EPA has failed to identify short-term health effects throughout any of the risk analysis proposals. The commenter asserted that any subcategorization of these engines without controls is not protective of public health.

One commenter suggested eliminating from the definition the reference to "when the primary power source has been rendered inoperable." There are emergency conditions where the primary power source is still operable, but the emergency condition necessitates the startup of engines (e.g., firewater pumps during a unit fire, instrument air back-up engines). Another option would be to add the words "or is insufficient for an emergency situation" after the primary power source comment.

Response: The preamble to the proposed rule proposed a subcategory for limited use stationary RICE and defined them as operating 50 hours or less per year. Comments received indicated that the proposed 50 hours per year for limited use units was not sufficient and that many limited use engines would exceed the 50 hours per year just by routine testing and maintenance of the engine for readiness purposes. For this reason, we feel that few owners and operators would find this allowance useful and would not serve a purpose except to cover periods of testing and maintenance. We have, therefore, found it appropriate to increase the number of hours for limited use operation. We have specified in the final rule that limited use stationary RICE are stationary RICE that operate less than 100 hours per year. For limited use units, operation during routine testing and maintenance is counted towards the 100 hours per year.

In the preamble to the proposed rule, we solicited comments on creating a subcategory of limited use engines with capacity utilization of 10 percent or less (876 or fewer hours of annual operation). These units would have included engines used for electric power peak shaving. As a result of soliciting comments, we received several comments regarding the possibility of establishing a limited use subcategory with capacity utilization of 10 percent or less; some for and some against. We considered all comments received and have decided not to include a subcategory of limited use stationary RICE with a capacity utilization of 10 percent or less in the final rule. Limited use units operating 876 hours per year are similar to other sources equipped with add-on oxidation catalyst control and their operation only during peak periods does not preclude them from being equipped with add-on oxidation catalyst control. Those commenters supporting a longer time period for the limited use engines did not provide persuasive arguments for such a subcategory. The commenters have not provided significant data indicating that engines operating up to 10 percent of the time (or longer, as some commenters suggested) are unable to take steps similar to other RICE to reduce HAP. On the contrary, as stated previously, such engines are similar to other stationary RICE that can be and have been equipped with add-on oxidation catalyst control, and their operation only during peak periods does not preclude them from being equipped with workable add-on control or from using other methods of emission control to reduce HAP. The 10 percent time limit would allow over a month of usage per year, which we feel is substantial enough both to be of concern environmentally and to take advantage of emission control strategies. Significant operation of these engines is expected and should be accounted for in the final rule.

By contrast, a limited use exemption covering only 100 hours per year of use is justified because usage in these cases in clearly exceptional and these engines would have the technical and usage concerns similar to emergency engines discussed in the proposed rule. These engines are categorically different from other engines in that they are only used in truly exceptional situations. For these reason, we have not established a limited use subcategory of units operating 876 hours per year in the final rule, but have included a limited use subcategory allowing engines to operate up to 100 hours per year.

We agree with the comment that the emergency and limited use stationary RICE definition should be separated. We have established separate definitions for emergency stationary RICE and limited use stationary RICE in the final rule.

In addition, in the final rule, the definition of emergency engine was written to indicate that loss of power that constitutes an emergency can include power supplied to portions of a facility. We intended that the definition of emergency engine include operation during emergency situations, including times when the primary power source has been interrupted as well as other situations such as pumping water in the case of fire or flood, which was given as an example of emergency operation in the definition in the proposed rule. The definition has been clarified to clearly indicate that emergency operation is not limited to only times when the primary power source has been interrupted. We contacted the commenter for more information about the types of curtailments with which they were concerned. The commenter provided only one example, which was shutdown of offshore wells during a hurricane. We feel that the definition of emergency stationary combustion engine is sufficient to cover this particular scenario and it is not necessary to include more examples of emergency operation. It would be nearly impossible to provide examples of every potential type of emergency situation. The operation of emergency engines is not limited to a specific number of hours. Also, routine testing and maintenance to ensure operational readiness have been included in the definition of emergency engine. However, the routine testing and maintenance must be within limits recommended by the engine manufacturer or other entity such as an insurance company. Emergency stationary RICE may also operate an additional 50 hours per year in non-emergency situations. As stated previously, routine testing and maintenance have been included in the definition of emergency stationary RICE and, therefore, are not counted towards the 50 hours per year. We do not agree that operation in anticipation of an emergency situation should be included in the definition of emergency engine and have not made this change.

Comment: One commenter requested a subcategory for new and reconstructed stationary CI RICE located in the State of Alaska that exempts the engines from the control requirements of this proposed rule. The commenter stated that EPA has overlooked the fact that low sulfur fuels (less than 500 ppm (0.05 weight percent)) are necessary for CO oxidation catalysts to operate properly and that these fuels are not available in several areas of the United States including the State of Alaska. Sulfur can quickly degrade oxidation catalyst performance for controlling CO (or formaldehyde) emissions by poisoning the precious metal substrate of the catalyst. In one study it was found that increasing the diesel sulfur content from 3 ppm to 350 ppm by weight resulted in a three-fold increase in catalyst-out PM emissions. In the same study, the performance of the diesel oxidation catalyst for controlling CO emissions from the higher sulfur fuel degraded by an average of 10 percent after the short-term (250-hour) aging tests. In Alaska meeting the proposed MACT floor (oxidation catalyst) for new CI RICE sources will be problematic because of the non-availability of low sulfur diesel fuels (300 to 500 ppm sulfur content by weight). The permitted diesel fuel sulfur content, by weight, for most permitted stationary CI sources is between 0.1 percent and 0.5 percent (1,000 ppm to 5,000 ppm by weight). The Trans Alaska Pipeline System facilities operated by the commenter have permitted sulfur fuel content limits between 0.24 percent to 0.5 percent. The lowest fuel sulfur diesel that is available in the State of Alaska is an arctic grade fuel that has a sulfur content of approximately 0.1 percent. Petroleum refineries in the State are not required to produce lower sulfur fuels because Alaska is exempted (see 40 CFR part 69 of 69 FR 34126) from EPA’s low sulfur highway diesel fuel standards.

Response: We feel it is unnecessary to establish a subcategory for new and reconstructed CI RICE located in the State of Alaska. Information received from the Alaska Department of Environmental Conservation (DEC) indicated that there is a refinery in Alaska that can produce low sulfur fuel (300 to 500 ppm sulfur content by weight). The refinery can make low sulfur diesel that meets arctic pour point specifications. The information from the Alaska DEC also indicated that low sulfur fuel is generally available where there are roads in Anchorage, but not generally available on other parts of the road system, such as Fairbanks. Some remote villages do have low sulfur fuel. We expect availability to grow further as EPA's final rule implementing new sulfur limits for highway fuel, including fuel in Alaska (68 FR 5002, January 18, 2001), is implemented beginning in 2006. The Alaska DEC said that Alaska has 200 small villages that are remote, and it may be difficult for these small villages to always have low sulfur fuel available. These villages tend to employ RICE to generate electricity and have between two to four stationary RICE in their power plants. These engines range from 6 to 4000 kilowatt (kW), with an average of 300 kW. The Alaska DEC said that these engines are below the threshold for major sources, and that is also confirmed by HAP emission calculations. Since these villages would not be major HAP sites they would not be affected by the final rule. The non-availability of low sulfur fuel at these remote villages would therefore not be an issue since these villages would not be subject to the rule since they are located at non major HAP sites. Finally, we have received information from catalyst vendors indicating that there are sulfur tolerant catalysts that have been commercialized and are suitable for use with fuels having a sulfur content between 3,000 and 5,000 ppm sulfur by weight. Sources that may not be able to obtain low sulfur fuel could use such catalysts to comply with the requirements of the final rule. For these reasons, we do not feel it is necessary to establish a separate subcategory for stationary RICE located in Alaska.

B. Definitions

Comment: Several commenters stated that EPA should revise the definition of rich burn engine to eliminate engines that have been converted to operate as lean burn engines and to address older engines (e.g., horizontal), where there is no recommended air/fuel ratio. One commenter recommended that EPA adopt the following definition into the final rule: "Rich burn engine means four-stroke spark ignited engine where the manufacturer's recommended air/fuel ratio divided by the stoichiometric air/fuel ratio at full conditions is #1.1. Engines originally manufactured as rich burn engines, but modified prior to [INSERT DATE 60 DAYS AFTER PUBLICATION OF THIS FINAL RULE IN THE FEDERAL REGISTER] with passive emission control technology for nitrogen oxides (NO_x) (such as pre-combustion chambers) shall be considered lean burn engines. Horizontal engines shall be considered lean burn engines. Also, older engines where there are no manufacturer's recommendations regarding air/fuel ratio will be considered a rich burn engine if the excess oxygen content of the exhaust at full load conditions is #2 percent."

<u>Response</u>: We agree with the commenter that it is necessary to address engines that have been converted from 4SRB engines to 4SLB engines and to also address older engines such as horizontal engines. We have, therefore, adjusted the definition of rich burn engine and have written the rich burn definition in the final rule as follows: "Rich burn engine means any four-stroke spark ignited engine where the manufacturer's recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is less than or equal to 1.1. Engines originally manufactured as rich burn engines, but modified prior to December 19, 2002 with passive emission control

technology for NO_x (such as pre-combustion chambers) will be considered lean burn engines. Also, existing engines where there are no manufacturer's recommendations regarding air/fuel ratio will be considered a rich burn engine if the excess oxygen content of the exhaust at full load conditions is less than or equal to 2 percent." In addition, to avoid conflict with the definition of lean burn engine, the lean burn engine definition has also been adjusted and reads as follows in the final rule: "Lean burn engine means any two-stroke or four-stroke spark ignited engine that does not meet the definition of a rich burn engine."

Comment: One commenter asserted that the definition of a reconstructed source should be modified to exclude any cost incurred with the installation of a control device required by State and local emission standards. The addition of diesel particulate filters (DPF) could exceed the reconstruction cost threshold (50 percent of fixed capital cost to construct a comparable new source).

Response: Based on the information we have available on costs of DPF systems and costs of engines, we feel that the addition of DPF would not exceed the reconstruction threshold of 50 percent of the capital cost of a new engine. Information received from CARB indicates that the total cost of a DPF including equipment and installation is around

$38/HP. Engine costs estimated by CARB are $93/HP for a new engine. Comparing the cost of a DPF system to the cost of a new engine shows that the addition of such a filter system would be less than 50 percent. Engine cost information available to us obtained from other sources indicate that engine costs are between $150-$270/HP. Using these engine costs, the addition of a DPF system would be an even lower percentage of the cost of a new engine. Engine costs are presented in a memorandum included in the rule docket (Docket ID Nos. OAR-2002-0059 and A-95-35). We have, therefore, concluded that based on both information received from CARB and information we already have, the addition of a DPF would be less than 50 percent of the cost of a new engine.

In any case, our policy regarding the inclusion of air pollution control equipment in determining reconstruction is that the costs associated with the purchase and installation of air pollution control equipment are included in the fixed capital cost to the extent that the equipment is required as part of the manufacturing or operating process. Therefore, it is our policy not to include the fixed capital cost of air pollution control equipment that is not part of the operating process. Since DPF is not required in order to operate an engine, the cost for purchase and installation of

DPF would not be included in determining whether a source is reconstructed. The commenter does not explain why we should deviate from the General Provisions based on compliance with State or local regulations. A source that is spending more than 50 percent of the capital cost needed for a new engine to meet the requirements should be in a position to make appropriate changes in its source at that time to meet the standards promulgated today. Moreover, the source may be able to comply with both requirements at the same time and may be able to meet the requirements using integrated controls (if not the same controls) that would be best implemented at the same time.

Comment: Several commenters requested that EPA write the definitions of affected source, existing stationary RICE, new stationary RICE, and reconstructed stationary RICE such that they represent the "collection" of each type of source at a site, consistent with General Provisions §63.2.

Response: Although §63.2 of the General Provisions provides that we will generally adopt a broad definition of affected source, which includes all emission units within each subcategory which are located within the same contiguous area, this section also provides that we may adopt a narrower definition of affected source in instances where we determine that the broader definition would "create significant administrative, practical, or implementation problems" and "the different definition would resolve those problems." This is such an instance. There are several subcategories of stationary RICE, and a site could have engines from multiple subcategories, each having different compliance requirements. Use of the broader definition of affected source specified by the General Provisions would require very complex aggregate compliance determinations. We feel such complicated compliance determinations to be impractical, and, therefore, have decided to adopt a definition which establishes each individual RICE as the affected source.

<u>Comment</u>: One commenter recommended that the preamble should clarify that the definition of major source in the RICE MACT does not alter the definition of a major source in subpart HH of 40 CFR part 63 (Oil and Natural Gas Production Facilities) and, therefore, does not affect subpart HH applicability.

<u>Response</u>: We recognize the commenter’s concern regarding the definition of major source in the RICE NESHAP and its difference from the definition of major source in 40 CFR subpart HH. We have, therefore, clarified in the preamble to the final rule that the definition of major source in the RICE NESHAP does not alter the definition of

major source in subpart HH (or any other subpart) and, therefore, does not affect subpart HH applicability.

Comment: One commenter recommended that the definitions from 40 CFR subpart HH and 40 CFR subpart HHH for glycol dehydration unit, storage vessel with the potential for flash emissions, and production well should be included.

Response: We agree with the commenter that the definitions should be included in the RICE NESHAP. The definitions from 40 CFR subpart HH and 40 CFR subpart HHH for glycol dehydration unit, storage vessel with the potential for flash emissions, and production well have been added to the final rule.

C. Dates

Comment: A few commenters remarked that EPA should provide 1 year for initial notification as in the glycol dehydration MACT.

Response: An initial notification is not a time consuming activity, and we do not feel that 1 year is necessary to submit an initial notification.

Comment: Multiple commenters expressed the view that immediate compliance for new and reconstructed engines is unreasonable. The commenters felt that 1 year compliance time frame is more reasonable.

<u>Response</u>: We feel that immediate compliance is appropriate for new or reconstructed engines and is consistent with the General Provisions of part 63. See also CAA section 112(i)(1). The requirements of CAA section 112 contemplate that sources will be aware of their requirements at the time of proposal and, excluding requirements that are made more stringent between proposal and promulgation, new or reconstructed sources should be prepared to meet such requirements immediately, at the time of the final rule. Sources are required to install the proper equipment and meet the applicable emission limitations on startup; however, we allow sources 180 days to demonstrate compliance. In addition, because two of our emission requirements have been made more stringent since proposal, sources subject to those requirements that commence operation in between proposal and the final rule may show compliance with the proposed requirements for the first 3 years of the program.

<u>Comment</u>: Several commenters stated that for area sources becoming major sources, the requirement to be in compliance at the time of the switch is unreasonable. Two commenters suggested allowing 1 year for the unit to come into compliance. One commenter suggested that all area sources that become major should be allowed 3 years to

achieve compliance or change the definition of a new stationary RICE to "A stationary RICE is new if you commenced construction of the stationary RICE after December 19, 2002, and you meet the applicability criteria for the subpart at the time you commenced construction." Five commenters suggested 3 years.

Response: We agree with the commenters that it is appropriate to allow existing area sources that become major sources 3 years to comply with the final rule. This has been specified in the final rule in §63.6595(b)(2). However, we do not agree with the commenters that immediate compliance is unreasonable for new and reconstructed RICE located at area sources that are constructed or reconstructed at the same time the area source becomes a major source. These sources are aware in advance of their change in status from area source to major source, and therefore, should have sufficient time to plan for immediate compliance with the final rule. This has been specified in the final rule in §63.6595(b)(1). A period of 180 days is allowed to demonstrate compliance.

Comment: Some commenters requested that EPA provide 1 year to conduct the initial performance test, rather than 180 days provided by the General Provisions. One commenter indicated that seasonal operations, such as storage facilities or compressor stations used in peak demand only, may not be operational during the 180 days provided to conduct the performance test. All existing 4SRB engines must conduct formaldehyde testing as a part of the initial performance test. It may be difficult to secure appropriate testing firms within the 180 days provided, especially since many may depend on Fourier Transform Infrared (FTIR) testing.

Response: We feel the time we have allowed sources to conduct the initial performance test is appropriate. Existing sources that must meet the requirements of the final rule have 3 years and 180 days to conduct the initial performance test and to demonstrate compliance. Therefore, existing 4SRB engines that must meet the formaldehyde emission limitations have sufficient of time to secure an appropriate testing firm. In addition, the final rule does not only specify that FTIR can be used for formaldehyde testing, but that also Method 323 can be used. This means it may not be necessary to secure testing firms specializing in FTIR measurements, and should increase the number of available testing firms. New sources that must meet the requirements of the final rule are aware in advance that their source will be covered by the final rule. We feel that 180 days is sufficient time to secure appropriate testing firms and to conduct the initial performance test and feel that 1 year to conduct the initial performance test is not necessary. Regarding the comment concerning seasonal operations, new sources do not have to test until the unit is operating, so seasonal operation should not be a concern for new units. Also, for existing sources, we feel that seasonal operation should not be a problem since the unit has 3 years and 180 days to conduct the initial performance test, and surely the unit would be operational within that timeframe. Finally, the 180 day time period for new sources is consistent with the General Provisions of part 63.

D. Emission Limitations

Comment: One commenter asserted that the emission limitations are too stringent. The commenter stated that the proposed emission standards were based on information from only five engines and does not believe that the proposed percent reductions and emission standards reflect the actual performance possible from the wide array of engine designs and sizes in the marketplace. For example, the formaldehyde reduction standard for rich burn engines in the proposed rule is set at 75 percent. However, the data in the docket show that results from eight test runs on two rich burn engines varied from 73 to 80 percent. If the reduction efficiency on two test engines under highly-controlled conditions can vary by such a significant amount (and to a level that does not meet the proposed standard), then it is highly likely that rich burn engines of different size and using different NSCR technology also would not be able to meet the standard. The EPA must consider the significant variability in RICE and adjust all final emissions standards and reduction percentages accordingly. The commenter recommended that the formaldehyde emission limits be revised upward by 10 percent to allow for variability in the RICE and aftertreatment system populations.

Three commenters asserted that the MACT floor for existing 4SRB is not representative of the average emission limit achieved by the best performing 12 percent of existing sources.

One commenter stated that the emission standard for existing 4SRB engines should be reassessed to be consistent with the requirements of CAA section 112(d). The commenter remarked that the Agency used the incorrect approach to set the emission limit for existing 4SRB engines, which logically should be lower percent removal than for new 4SRB engines. It was the commenter’s opinion that the Agency should revisit the analysis and establish an emission limit for 4SRB engines more consistent with the required floor-setting methodology.

Five commenters expressed that the same emission limitation for existing and new 4SRB is unrealistic. One commenter recommended considering 10 percent less restrictive emission reduction requirement for existing units. Another commenter indicated that practically speaking, retrofitting existing equipment rarely achieves the optimum design available in new equipment.

One commenter contended that 350 ppbvd is too low. The chosen limit was achieved by the best performing engine during Colorado State University (CSU) testing while for other types of engines the highest emissions from the performance range had been chosen as the emissions limit.

Response: We disagree with comments that the MACT floor level proposed for existing 4SRB engines is inconsistent with the statute or not representative of the average emission level achieved by the best performing 12 percent of existing sources. The commenters do not dispute the accuracy of the data used or the representativeness of the engines tested. The commenters instead believe the manner in which we used the data is not reflective of the average of the best performing 12 percent of existing sources. To clarify our approach in the proposal, we found the lowest percent reduction value for each of the two sources tested, which accounts for variability in results for each source. However, as we found that 27 percent of the engines in the subcategory use NSCR, we felt that it was appropriate to use only the higher of the two values to determine the MACT floor for existing engines. In essence, this treated the top performer as a surrogate for the top half of the population using NSCR or the top 13.5 percent of the population. This is more closely analogous to the level of the top 12 percent of sources than is a straight average of the two sources.

However, in reviewing our method in response to these comments, we feel that it would be more appropriate to include in the analysis the data from the lower performing of the two engines tested, thus using more than a single data point in determining the MACT floor for existing engines. Because the test calculation for the MACT floor for existing engines is supposed to be based on the average of the top performing 12 percent of sources, it would be better to rely on a formula that does not rely solely on the highest performer. Also, it would not be appropriate to use a straight average between the two sources, because that would not be a fair approximation of the average of the top 12 percent of sources. Instead, it would approximate the average of the best performing 27 percent of sources.

Therefore, we feel a reasonable approach is to discount the lower performing source by 12/27, thus reducing the influence of that data point by the ratio of controlled sources (27 percent of the population) compared to the statutory level (12 percent). This leads to a weighted average where the data point for the lower performer will be worth 22 percent (50 percent) (12/27) and the level for the higher performer will be worth 78 percent.

To be consistent with the approach followed for other engine types, i.e., establish emission limitations based on test results conducted at high loads, we found it appropriate to exclude runs conducted at low loads in determining the lower and higher performer. This leads to a final MACT floor of 76 percent control efficiency or 350 ppbvd.[1] Though the formaldehyde reduction number differs slightly from the proposed level, it is very close. The proposed level for the alternative formaldehyde concentration emission limitation remains the same even

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1 The calculation of percentage reduction is as follows: (lowest tested percentage reduction of the lower performing engine) * (.222) + (lowest tested percentage reduction of the higher performing engine) * (.778) = (75.5)(.222) + (76.2)(.778) = 76.0. The calculation of parts per billion is as follows: (highest tested parts per billion of the lower performing engine) * (.222) + (highest tested parts per billion of the higher performing engine) * (.778) = (355)(.222) + (348)(.778) = 350.

after following the revised approach. This should not be particularly surprising. Though the emission values of the two engines were not identical, they were very close and the final values for either engines generally round to the same value.

For new 4SRB engines, we proposed a formaldehyde reduction requirement of 75 percent and an alternative formaldehyde concentration emission limitation of 350 ppbvd. In reviewing the 4SRB emissions data we used to set the standard, we observed that the minimum percent efficiency achieved by the best performing engine was actually 76.2 percent formaldehyde reduction. Therefore, we acknowledge that the proposed formaldehyde reduction should have been set at 76 percent reduction for new 4SRB engines and not 75 percent formaldehyde reduction and have written this in the final rule.

The commenters also seem to argue that the MACT floor levels for existing engines must be less stringent than those for new engines. While the criteria for the MACT floor for new engines is in some cases more stringent than for existing engines, it is not impossible, or even illogical, for the result to be the same, or at least very close. In this case, the best performing 12 percent of engines use the same control technology, and the emission values, as well as the emission reduction values, appear to be very close for these engines. Therefore, it is not surprising that the levels for the MACT floor for new and existing engines should be close. Moreover, we were using a very small data set in setting the final emission limits, thus limiting the variation in the data used. This led to a proposed level that used the same calculations for determining the MACT floor for both existing and new engines. We have changed the manner of calculating the MACT floor for existing engines for the final rule, but the result is still very close to that for new engines. Again, this is because the results for both engines were very close.

Regarding the comment referring to the use of the average of the best five performing sources, this is only permitted when the category or subcategory has less than 30 sources. This is not the case with this subcategory. Given that we had usable data from only two sources, it is not clear that averaging the two sources would be appropriate to meet that requirement.

Regarding the comment that retrofitting existing equipment rarely achieved the optimum design available in new equipment, the commenters provide no data showing that emissions reductions from retrofitting existing engines would be reduced compared to those from new engines. Regardless, the MACT floor for new engines is not based on the optimum possible design for a new engine, but on the best level of control achieved in practice by the best controlled similar source, whether retrofitted or not. Similarly, the MACT floor for existing engines is based on a specific formula. We based the MACT floor for new engines on the information available to us from existing engines. While individual existing sources may have some design constraints in installing the emission control technology, there is no evidence that the MACT floor is not achievable. The suggestion that is provided, a 10 percent discount for existing units, without a basis in the existing data, does not appear consistent with the requirements of CAA section 112(d).

Comment: One commenter indicated that there is considerable doubt about the ability of an oxidation catalyst to reduce the formaldehyde concentration over long periods of time. A technical paper presented at the 2002 Gas Machinery Conference found that the catalyst efficiency for the Waukesha GL engine for formaldehyde reduces from 100 percent to 67 percent in only 150 hours of operation.

Response: We accounted for catalyst aging in setting the standard. In fact, the oxidation catalysts used during

EPA’s testing at CSU were sufficiently aged prior to testing. The 2SLB engine catalyst was aged for 236 hours, the 4SLB engine catalyst was aged for 140 hours, and the CI engine catalyst was aged for 100 hours. Industry representatives were in agreement that the catalysts were adequately aged. The industry testing we used in setting the standard for 4SRB engines was based on testing of two 4SRB engines equipped with NSCR. The NSCR catalysts used were appropriately aged by more than 2 years prior to testing. Information regarding catalyst aging at CSU is presented in a memorandum included in the rule docket (OAR-2002-0059 and A-95-35).

Comment: One commenter said that the 14 ppmvd formaldehyde limit for new 4SLB engines is not achievable and should be increased. The commenter stated that EPA based its proposed limit on a small number of tests on a newly rebuilt engine over a test period of 8.8 hours. Only a single 4SLB was tested, and it may not be representative of engines of the same type from different manufacturers. The period of catalyst aging was very short compared to typical catalyst maintenance intervals, so results may not be representative of catalyst performance during normal catalyst maintenance intervals; and the tests were performed within only a single catalyst that may not be representative of catalysts from different manufacturers. Clearly, all 4SLB stationary RICE cannot meet the emissions limits set by EPA in the proposed rule, particularly over normal catalyst life intervals of 2 to 3 years. The EPA should incorporate other available test data in the final emission limits for 4SLB engines to accommodate the degradation in catalyst performance over the useful lifetime of the catalyst.

Response: The MACT floor for new sources cannot be less stringent that the emission control that is achieved in practice by the best controlled similar source. The alternative formaldehyde standard for 4SLB engines is based on the minimum level of control achieved by the best controlled source. This approach takes into account variability of the best performing engine. Furthermore, EPA and industry representatives were in agreement that the engines and catalysts tested at CSU were representative of engine and catalyst operation across the U.S. We discussed catalyst aging during the EPA testing at CSU in response to the previous comment. We feel the catalyst was sufficiently aged prior to testing at CSU. Industry representatives also agreed that the catalyst was adequately aged. For the reasons provided, we feel that the 14 ppmvd formaldehyde limit that was proposed for 4SLB is appropriate and achievable. We recognize that the alternative formaldehyde emission limitation is based on a limited amount of data. However, we feel that sources with a well designed oxidation catalyst that operate the equipment properly will be able to meet the formaldehyde concentration.

Comment: Several commenters expressed that 93 percent CO reduction is not achievable. During the public hearing a commenter stated that a specific CO limit is more reasonable. Two commenters suggested reducing the limit to require 60 percent CO reduction. One commenter recommended that the value be set between 70 and 80 percent comparable to 2SLB and CI engines. Another commenter stated that EPA has not demonstrated that the catalyst will perform at this level on a continuous basis considering fuel and lubrication poisoning. Finally, one commenter said that American Petroleum Institute/Gas Research Institute testing indicated a 53 to 63 percent performance. The commenter also said that the percent reduction likely will not be achievable with aged catalysts.

One commenter had several concerns with establishing the CO reduction limit based on the testing conducted at CSU. The concerns stated by the commenter include: only a single engine for each type was tested and it may not be representative of engines of the same type from different manufacturers; the variables consisted only of parameters affecting HAP formation in the engine and not necessarily those affecting CO reduction across the catalyst; the engines were rebuilt prior to testing to represent new engines and may not represent engine condition between routine maintenance intervals; the period of catalyst aging was very short compared to typical catalyst maintenance intervals, hence results may not be representative of catalyst performance during normal catalyst maintenance intervals; and the tests were performed with only a single catalyst that may not be representative of catalysts from different manufacturers.

One commenter stated catalyst performance degrades over time due to gas species and concentrations, thermal cycling, chemical poisoning and/or physical blocking caused by sulfur, lubricants, silica, etc. that enter the exhaust from the fuel, crankcase and/or combustion air. Catalyst life is the dominant factor in the cost of the control technology, since the cost of replacement catalyst modules is large relative to other operating and maintenance costs. Typically, oxidation catalysts undergo two stages of deactivation: a period of rapid deactivation as the catalyst adjusts to the thermal and gas conditions, typically over a period on the order of 100 hours; followed by a period of slow deactivation that occurs over thousands or tens of thousands of hours. The duration of the CSU tests was clearly insufficient to address long-term catalyst deactivation, and perhaps not even fully accounting for initial deactivation. For example, CO reduction efficiency during the 140 hours of catalyst aging during the 4SLB engine test at CSU was still declining at the end of that period, suggesting that further deactivation would likely occur over time.

Response: We disagree with the commenter that 93 percent reduction for CO is not achievable for 4SLB engines. The 93 percent CO reduction emission limitation is based on the minimum level of control achieved by the 4SLB engine tested at CSU. We chose the minimum efficiency achieved as this value takes into account variability in performance of the engine and engines operating across the U.S., therefore, we feel we have appropriately set the emission limitation for 4SLB engines.

As rationale for setting the limit at 60 percent, the commenter cited a recent field test of a 4SLB engine where the measured CO reduction efficiency was 53 to 60 percent. However, the commenter did not provide any indication of what reduction efficiency the catalyst was designed for, or whether the catalyst had been properly maintained and cleaned. The commenter also did not identify the operating conditions under which the test was conducted, for example if the test was conducted during high load operation. Moreover, given the results of the CSU testing, and the standard-setting requirements for new engines under CAA section 112(d), it is not clear that the results in that test would be relevant for standard-setting for new engines.

Regarding the concerns expressed by one commenter, EPA and industry representatives were in agreement that the engines and catalysts tested at CSU were representative of engine and catalyst operation across the U.S. As explained in the preamble to the proposed rule, the testing conducted at CSU to obtain HAP and CO emissions data was a joint EPA-industry effort. Prior to testing, EPA and industry developed a list of engine operating parameters that were known to vary throughout the U.S. for each type of engine. The engines and control devices were tested at typical engine conditions in which these operating parameters were varied. The variations in the emission reduction results for each engine type are due to the variability of the engine and control system and include a representation of the performance of the best controlled source for new engines. Equipment manufacturers, catalyst vendors, owners and operators, and EPA agreed that the tests conducted at CSU were representative of typical engine operating conditions in the field for varied engine and catalyst manufacturers. It is believed that the variations in the operating parameters affect both HAP formation and CO reduction across the catalyst. For additional information regarding the CSU testing, please refer to the rule docket (Docket ID Nos. OAR-2002-0059 and A-95-35).

We disagree that the catalyst will not perform at this level on a continuous basis or when it is aged. The CSU testing was funded by several different agencies, and several stakeholders participated in the planning, preparation and execution of the tests. All stakeholders agreed that the catalyst was properly aged before testing was initiated on each engine. We discussed catalyst aging during the testing at CSU in response to a previous comment. We feel the catalyst was sufficiently aged prior to testing at CSU. It should be noted, as discussed below, that sources may meet the formaldehyde concentration standard to meet the requirements as well as the 93 percent CO reduction requirement.

In response to the comment regarding long-term catalyst deactivation, we reemphasize that industry representatives that were involved in the testing at CSU agreed that the testing would be representative for catalyst performance, both short-term and long-term. We agree with the commenter that there may be two stages of deactivation. The first stage of deactivation may occur during the first 100 hours, or might occur as early as after 20 hours of operation. A second stage of deactivation may occur over a period of more than a 1,000 hours of operation. However, information received from catalyst vendors indicate that they are able to design the catalyst to achieve the guaranteed percent reduction at the end of the catalyst life (warranty period). The percent reduction may decline slightly in the beginning but the catalyst can be designed to stabilize at the desired percent reduction. Catalysts that can achieve emissions reductions of 93 percent or more for the life of the catalyst are within the technological limits of this technology. For these reasons, we feel the CO percent reduction requirement of the final rule is appropriate and justified.

Comment: Multiple commenters asked that EPA allow sources to choose either percent reduction or final concentration to comply with irrespective of the control technique employed.

Response: We agree with the commenters, and we feel it is appropriate to allow sources to choose either the percent reduction or formaldehyde concentration outlet limit to demonstrate compliance irrespective of the control technique employed. We have specified this flexibility in the final rule.

Comment: Two commenters argued that the proposed rule does not recognize DPF as a significantly more effective control device for reducing diesel exhaust emissions compared to diesel oxidation catalysts. One commenter asked that the final rule require the use of particulate traps on diesel engines. Another commenter expressed concern with the interaction of control equipment with diesel particulate traps. One commenter indicated that DPF can reduce diesel PM by at least 80 percent. According to the commenter, these traps can reduce CO by at least 90 percent.

Response: The commenters indicate that DPF are effective at reducing diesel exhaust emissions or diesel particulates. These are not HAP listed pursuant to section 112(b) of the CAA and, therefore, are not the pollutants that the final rule is targeting specifically. The EPA has recently received a request to list diesel exhaust pursuant to section 112(b) of the CAA and is currently reviewing that request. At the time of proposal, we investigated DPF. However, at the time of this investigation, the effectiveness of DPF on listed HAP emissions from stationary sources had not been demonstrated, and the technology had only been applied to a handful of stationary RICE. They, therefore, were not appropriate as a MACT floor technology. We examined DPF for their ability to reduce listed HAP and their cost effectiveness. We concluded that there were no data to show that this technology would be more effective at reducing listed HAP than oxidation catalysts. We also noted that this technology was more expensive than oxidation catalysts, so we did not use this technology as a basis for the proposed MACT levels. However, the proposal did allow the use of technologies other than oxidation catalysts, including DPF, to meet the MACT requirements, which are generally numerical, though there were certain compliance options that differed depending on the emission control used on the engine. Since proposal, we have received new information regarding DPF resulting in reevaluating the feasibility of applying DPF to stationary RICE. (See Docket ID Nos. OAR-2002-0059 and A-95-35.) In addition, the final rule eliminates all provisions linking the standard to any particular control technology. Sources are free to choose any compliance option irrespective of the control technique applied. We have no reason to believe that DPF are incompatible with oxidation catalysts or that they cannot be used instead of oxidation catalysts. In the context of its mobile source regulations, we have found that DPF can be incorporated with other emission control devices without compatibility problems. We agree with the commenter that DPF may be able to reduce PM by at least 80 percent and they might be able to also reduce CO by at least 90 percent, at least in certain instances, though EPA has determined that these reductions can only be reliably achieved using ultra low sulfur fuel (15 ppm sulfur content by weight). However, we do not have any actual test data showing that DPF can reliably reduce HAP emissions from stationary CI engines at a level beyond that already required by the final rule. In particular, we do not have data regarding actual use of these devices on stationary RICE, or under the range of operating parameters reasonably expected for such engines. Also, the ultra low sulfur fuel (15 ppm sulfur content by weight) needed for this technology is not yet available in sufficient quantities in the U.S. We, therefore, have determined that there is currently not enough information regarding DPF as applied to HAP emissions from stationary CI engines on which to base the standard for the final rule.

Comment: One commenter urged EPA to rationalize its policy and address the serious public health impacts associated with diesel-powered RICE by establishing rigorous PM and clean fuel requirements in the final rule.

Response: We appreciate the comments regarding pollution from diesel-powered stationary RICE. While we agree that diesel engines emit pollutants of concern beyond those covered in the final rule, we do not feel it would be appropriate to establish diesel PM or clean fuel requirements in the rule. The final rule is a relatively narrow rule, regulating only listed HAP from stationary RICE. Diesel PM is not currently listed as a HAP under section 112 of the CAA. While regulation of diesel PM may be appropriate in the long-term, either as a criteria pollutant or as a listed HAP, we do not feel that the final rule, which proposed only to regulate HAP already listed under CAA section 112, is the appropriate place to promulgate final rules affecting criteria pollutants and precursors (like PM or NO_x). Similarly, the commenter does not provide an explanation of the need to regulate diesel fuel, except as it affects PM emissions. Therefore, we are not taking any final action with regard to these issues in the final rule.

Comment: Several commenters sought adjustment of the MACT emission limitations to reflect fully the test results that are the basis for the standard. One commenter indicated that the CO percent reduction standard for 2SLB engines should be adjusted to 58 percent to reflect the lowest percent reduction achieved during the EPA-sponsored emission testing at the CSU Engine Lab, which is the basis for the 2SLB standards. The formaldehyde percent reduction standard for 4SRB engines should be adjusted to 73 percent to reflect the lowest percent reduction achieved during the industry-sponsored testing, which is the basis for the 4SRB emission standards. Similarly, the formaldehyde concentration standard for 4SRB engines should be adjusted to 370 ppbvd at 15 percent oxygen to reflect the highest post-NSCR concentration of formaldehyde.

Response: We agree with the commenter that the CO percent reduction standard for 2SLB should be adjusted to 58 percent to fully reflect the possible variation for the best performing source for these engines. We have made this adjustment in the final rule to fully reflect the test results obtained for the 2SLB engine tested at CSU. We proposed an alternative formaldehyde emission limitation of 17 ppmvd for new 2SLB engines in the proposal. The concentration for the formaldehyde emission limitation was based on the minimum level of control achieved by the best controlled source. This approach takes into account the variability of the best performing engine. The formaldehyde emissions at CSU ranged from 7.5 ppmvd to 17 ppmvd. Therefore, we chose 17 ppmvd at proposal. The 17 ppmvd formaldehyde concentration was based on a run conducted at low load (69 percent). After reviewing our approach at proposal, we have found it inconsistent to establish the alternative formaldehyde emission limitation based on the level achieved during a low load test. The approach that we have used for other engine types in establishing the alternative emission limitations was to establish the limits based on high loads and to require compliance at high loads. The expected trend is for emissions to generally increase with decreasing load; however, we do not have sufficient data to take the effect of load into account in establishing the alternative emission limitations. Because of this, the emission limitations are based on performance at high loads. We expect that if the emission limitations are achieved at high load then the technology will be operating appropriately and will also operate appropriately at lower loads. To be consistent, we have established in the final rule an alternative formaldehyde emission limit for new 2SLB engines of 12 ppmvd. This number is based on the minimum level of control achieved by the best performing engine at high load conditions. We have specified in the final rule that performance tests must be conducted at high load conditions, defined as 100 percent ±10 percent. If a source has demonstrated compliance with the emission limit at high loads it is assumed that the technology is operating appropriately and will also operate appropriately at lower loads. Sources are not required to meet the emission limitation at low load.

As described in the preamble to the proposed rule, we reviewed emissions data from an industry sponsored formaldehyde emission test conducted on two 4SRB engines. We selected the best performing engine based on the highest average formaldehyde percent reduction. The average reduction was 79 percent for that engine; however, to establish variability we looked at each of the 12 individual test runs performance on that engine. The percent reduction varied from 75 percent to 81 percent. At proposal, we selected 75 percent for the MACT floor. However, since proposal, we have reviewed the method we used to set the MACT floor for existing 4SRB engines. We feel it would be more appropriate to include in the analysis the data from the lower performing engine, thus using more than a single data point in determining the MACT floor for existing 4SRB engines. The revised approach was discussed in detail in response to a previous comment. In that response, we described our revised approach which takes into account the performance of both engines tested, using a weighted average where the data point for the lower performer will be worth 22 percent and the level for the higher performer will be worth 78 percent. In addition, to be consistent with the approach followed for other engine types, we have excluded runs conducted at low loads in setting the MACT floor. As previously indicated elsewhere in this document, since the MACT floor is based on emissions data from runs at high loads, performance tests must be conducted at high load conditions, defined as 100 percent load, ±10 percent. The commenter stated that the formaldehyde percent reduction standard for existing 4SRB engines should be adjusted to 73 percent to reflect the lowest percent reduction achieved during the industry-sponsored testing. Although the commenter is correct in stating that 73 percent formaldehyde reduction was the lowest average reduction, 73 percent reduction was achieved during a run that was not conducted at high load. For this reason, it is not appropriate to use the 73 percent formaldehyde reduction in the MACT floor analysis. Similarly, the run where the formaldehyde concentration was measured at 370 ppbvd was also not conducted at high load, and was, therefore, not used in our analysis of the MACT floor for existing 4SRB engines.

Comment: One commenter requested that the "burn-in" period during commissioning of new or rebuilt engines should be exempted from emission limits. Catalyst manufacturer warrantees typically require a "burn-in period" for new and rebuilt engines prior to placing the catalyst on stream.

This is intended to allow seating of critical engine components (e.g., piston rings). Catalyst placed on stream before this burn-in period is subject to physical damage from engine backfire and poisoning and or fouling from crankcase oil blow-by. The EPA has acknowledged this need in a prevention of significant deterioration and title V Permit by including the following language: "The permittee shall be allowed to operate the replacement/overhauled engine without the use of the catalytic converter assembly for a period not to exceed 200 hours from the engine startup, unless a longer time period has been approved by EPA, in writing." The commenter recommended that deviating from the emissions limits during the burn-in period or the first 200 hours of operation of a new or rebuilt RICE not be considered a violation. The commenter recommended that a statement be added at §63.6640(d) that deviating from the emissions limits during the burn-in period or the first 200 hours of operation of a new or rebuilt RICE is not a violation.

Response: We agree with the commenter that an engine burn-in period of 200 hours is appropriate prior to installing the catalyst to prevent damage to the catalyst. We have, therefore, specified that new or rebuilt engines may operate for up to 200 hours prior to installing the catalyst in the final rule and that this will not be considered a violation. However, sources have 180 days after the compliance date specified for their source to conduct the performance test and initial compliance demonstration and the 200 hours of burn-in time must be conducted within the these 180 days.

Comment: One commenter did not agree with EPA's determination of the MACT floor for 4SLB RICE. The database used to determine the MACT floor is based on pre-1999 information and includes 542 engines from Wyoming. Since 1999, Wyoming has permitted 2,100 4SLB engines. Approximately 62 percent of the greater than 500 HP 4SLB permitted since 1999 have been required to be equipped with oxidation catalyst to control formaldehyde. The EPA reports the number of existing 4SLB used in determining the MACT floor at 4,149. Including the 4SLB engines greater than 500 HP permitted since 1999 in Wyoming, the total is 5,664. Of this total, 935 engines have permit conditions requiring oxidation catalyst to control formaldehyde, which is 16.5 percent of the total. Section 112(d) of the CAA requires the emission standard for existing sources be no less stringent than the emission limitation achieved by the best performing 12 percent of existing sources. The commenter contended that the database used to determine the MACT floor is incomplete, and EPA must reevaluate the MACT floor including permitting actions post 1998.

Response: We contacted the commenter who submitted this comment. The commenter stated that mostly all of the engines that have been permitted are minor sources of HAP. Since the 4SLB engines permitted in Wyoming are nearly all at minor sources of HAP, it is not accurate to add these sources to the determination of the average of the best performing 12 percent of existing sources from the source category. The determination of the average of the best performing 12 percent of existing sources must be based on the sources regulated. Since the final rule only covers major sources, it is not appropriate to include the minor source engines permitted to require oxidation catalyst in Wyoming. Moreover, the calculation of the MACT floor does not require that we include reductions that were implemented within 18 months of the proposal, or 30 months of the final rule. It is not clear how many of the engines the commenter discusses were equipped with oxidation catalysts during that period. Therefore, we have not reevaluated the floor for existing 4SLB engines. The MACT floor of existing 4SLB engines remains at no emissions reductions.

E. Monitoring, Recordkeeping, and Reporting

Comment: Multiple commenters contended that the CO

CEMS requirement for large lean burn engines is unreasonable. The commenters stated that parameter monitoring and periodic testing should be offered to CO monitoring on all lean burn engines. One commenter noted that given that the best available emissions control technology for RICE is a passive catalyst system and that the operator cannot reduce or improve HAP removal efficiency, simplified and less costly environmental monitoring requirements should be adopted.

Response: We now feel that the proposed requirement for 2SLB, 4SLB, and CI engines 5,000 HP or above complying with the requirement to reduce CO emissions using an oxidation catalyst to use CO CEMS is unnecessary and inappropriate. The costs associated with a CO CEMS is estimated to be over $200,000 in capital costs and nearly $60,000 in annual costs. We consider these costs to be excessive. For these reasons, we feel it is not appropriate to include a requirement for large lean burn and large CI engines to install CO CEMS in the final rule. We feel that the combination of periodic stack testing and parameter monitoring is a proper and reasonable alternative for large engines. The testing of CO will ensure, on an ongoing basis, that the source is meeting the CO percent reduction requirement. In addition to stack testing, 2SLB, 4SLB, and

CI engines meeting the CO percent reduction requirement and using an oxidation catalyst must continuously monitor and maintain the catalyst inlet temperature as well as maintain and monitor the pressure drop across the catalyst monthly. These parameters serves as surrogates of the oxidation catalyst performance and by monitoring and maintaining these parameters, continuous compliance between stack testing will be ensured. Stationary RICE meeting the CO percent reduction requirement that are not using an oxidation catalyst must petition the Administrator for approval of operating limitations and must continuously monitor and maintain the operating parameters that are approved (if any).

We are including CO CEMS as an option to periodic stack testing and parametric monitoring for all lean burn and CI engines in the final rule, but it is not required.

Comment: One commenter observed that deficiencies noted in the proposed rule with regard to the test methods and performance protocols render CO CEMS infeasible for the RICE MACT. While CO CEMS have been demonstrated on some facility types, their application to RICE is very limited. Vendor claims for CO CEMS and CO instrumental analyzers, unless accompanied by emissions test data obtained under known and controlled conditions applicable to the subject source type, should not be considered adequate proof of availability and performance. While it may be appropriate for EPA to solicit comments on its test methods and technical monitoring requirements, the commenter found that it is inappropriate to propose requirements for measurement systems prior to resolving the current deficiencies with the EPA protocols.

Response: We disagree with the commenter that the application of CO CEMS must be considered infeasible for all RICE unless accompanied by emission test data obtained under known and controlled conditions applicable to the subject source category. Since we have previously established acceptable CEMS performance specifications, we can allow the RICE source owner and operator the optional use of CO CEMS within such performance standards as an effective parameter monitor. However, as discussed above, we do agree that we should not require the installation of CEMS at all affected facilities.

Comment: Many commenters asserted that the fuel flow and HP limits should be removed. Five commenters recommended that EPA specify that the emission standards only apply within a 60 to 100 percent load range and performance testing should be conducted within that load range. One commenter suggested revising MACT requirements to have emission limits and performance testing applicable at higher load conditions instead of establishing the lowest load to be operated in the future. Another commenter recommended that the final standards only apply down to the lowest load for which EPA has data and should specify that the performance test be conducted in that load range. One commenter stated that should EPA pursue minimum load testing and compliance in the final rule, the owner and operators should be allowed to retest the unit at some time later than the initial performance test to enlarge the operating range. The lower operating load and fuel range should then be based on the lowest load that has demonstrated compliance irrespective of whether the demonstration occurred in the initial or later performance tests.

One commenter stated that the NESHAP provide two options. One is to use a catalyst and the other is to limit the formaldehyde. If the formaldehyde limit is chosen, however, the engine must maintain an operating load of 95 percent or more of the load established in the initial testing, which under many circumstances is impractical. For example, this option cannot be chosen for the commonly used variable-load application engine. For variable load engines, there is no choice but to use a catalyst. The commenter believed that this approach limits the flexibility in controlling these engines.

Response: In the proposed rule, we required sources complying with the alternative formaldehyde limit to maintain an operating load equal to or greater than 95 percent of the operating load established during the initial performance test or maintain a fuel flow rate equal to or greater than 95 percent of the fuel flow rate established during the initial performance test. These sources were also required to comply with any additional operating limitations approved by the Administrator. Based on information received during the public comment period, we have reached the conclusion that maintaining the load or fuel flow rate within 95 percent of that established during the initial performance test may be impractical for many applications, especially those in load following applications. Therefore, we have not included the requirement to maintain load or fuel flow rate in the final rule. Sources complying with the alternative formaldehyde limit that use an oxidation catalyst or NSCR must continuously maintain and monitor the catalyst inlet temperature and measure the pressure drop across the catalyst monthly. Sources complying with the alternative formaldehyde limit that do not use an oxidation catalyst or NSCR must petition the Administrator for operating limitations to be continuously monitored. In the petition for approval of operating limitations, we recommend that sources consider establishing load or fuel flow rate as possible operating parameters to continuously monitor. Finally, we have based the emission standard on test results from high load tests only. Typically, as load decreases, the concentration of HAP increases. Comments received support this trend. Therefore, we have specified in the final rule that performance tests must be conducted at high load conditions, defined as 100 percent ±10 percent.

Comment: Several commenters contended that the temperature ranges at the catalyst inlet should be revised. Six commenters supported an operating range of 450°F to 1350°F for lean burn engines and the ability to develop customized catalyst inlet temperature ranges based on specific engine operating parameters. One commenter recommended using 450°F minimum catalyst inlet temperature for 2SLB. One commenter also said that owners and operators should be allowed to identify more appropriate temperature ranges based on performance testing, control device design specifications, manufacturer recommendations, or other applicable information (such as a performance test on a similar unit).

Response: We proposed that lean burn and CI engines complying with the requirement to reduce CO emissions maintain the temperature of the stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 500°F and less than or equal to 1250°F. We required the catalyst inlet temperature to be maintained to ensure proper operation of the oxidation catalyst. We stated in the preamble to the proposed rule that, in general, the oxidation catalyst performance will decrease as the catalyst inlet temperature decreases. Also, if the catalyst inlet temperature is too high, oxidation catalyst performance could be affected. Finally, the oxidation catalyst inlet temperature cannot be too low, or the reduction of HAP emissions may be compromised. For these reasons, we proposed that sources complying with the CO reduction requirement using an oxidation catalyst maintain the catalyst inlet temperature within 500°F and 1250°F. Several comments received during the public comment period indicated that the temperature range we proposed for catalyst inlet temperature should be expanded. Commenters suggested that the lower end of the temperature range should start at 450°F. The level of the standard for 2SLB engines is 58 percent CO reduction. Similar CO reduction was seen at CSU for 2SLB engines where the exhaust temperature was 450°F. For this reason, we agree with the commenters that the catalyst inlet lower temperature should be set at 450°F. Furthermore, we feel that the oxidation catalyst will perform adequately at a temperature of 1350°F. This was discussed in a memorandum included in the rule docket (Docket ID Nos. OAR-2002-0059 and A-95-35). Commenters also stated that Waukesha Pearce Industries, Inc. includes 1350°F in their limited warranty statements for oxidation catalysts. Therefore, we have written the temperature range requirement for catalyst inlet temperatures to be between 450°F and 1350°F in the final rule. Regarding the comment that owners and operators should be allowed to identify more appropriate temperature ranges, we feel that requiring a catalyst inlet temperature range of 450°F to 1350°F is appropriate. Based on information from the testing at CSU, information from catalyst vendors, and information provided in comment letters submitted to the docket, we feel we have adequate information that supports requiring a catalyst inlet temperature range of 450°F to 1350°F, and we do not feel it is necessary to allow owners and operators the ability to identify and define other temperature ranges. Owners and operators have the option to petition the Administrator for other operating parameters following the procedures in section 63.8 for alternative monitoring procedures.

Comment: Many commenters stated that the requirement to measure pressure drop should be removed. One commenter indicated that the operating limitation not to exceed a pressure change of 2 inches of water column from the initial performance test has the potential to be problematic in practice. Another commenter stated that there is no need for continuous pressure drop measurements on engines running exclusively on natural gas and at high loads. The commenter has seen very little problems with catalyst fouling on their lean burn RICE equipped with oxidation catalysts. The commenter understood that it is an issue in some installations, but concludes that they would be applications either running on other fuels or where engines are run at idle or very low load for long periods of time. One commenter stated that the proposed requirements to continuously monitor and maintain a prescribed pressure differential across the catalyst should be removed from the final rule for the following reasons: (1) although significant change in differential pressure across the catalyst may provide an indication that the catalyst has become fouled, EPA has presented no evidence to suggest that an increase in 2 inches of water column means that catalyst performance is impacted; (2) industry data demonstrates that the pressure drop can increase more than 2 inches of water column without impacting catalyst performance. Such increases may even occur because of engine operating conditions. For that reason, EPA's proposed 2 inches of water column condition might forbid engines to operate within part of their normal operating range; and (3) vendors do not treat pressure differential as a continuous operating parameter requirement. Rather it is presented as a maintenance requirement for catalysts on some engines. The general duty clause of §63.6(e)(1)(i) is sufficient to address pressure drop issues. Finally, one commenter stated that the uniqueness of the installation should be given consideration in whether or not pressure drop is required to be monitored.

Response: We proposed a requirement for 4SRB engines complying with the requirement to reduce formaldehyde emissions using NSCR and 2SLB, 4SLB, and CI engines less than 5,000 HP complying with the requirement to reduce CO emissions using an oxidation catalyst to maintain the catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water from the pressure drop across the catalyst measured during the initial performance test. Catalyst vendors have indicated to EPA that the pressure drop across the catalyst may be a good parameter to indicate catalyst performance and that an increase in pressure drop is an indication of poor catalyst performance. The pressure drop across the catalyst can indicate if the catalyst is damaged or fouled. If the catalyst is damaged or becomes fouled, the catalyst performance would decrease. For the reasons provided, we feel it is appropriate to use the pressure drop as it serves as a surrogate of the catalyst performance.

We determined at proposal that if the pressure drop across the catalyst deviates by more than 2 inches of water from the pressure drop across the catalyst measured during the initial performance test, the catalyst might be damaged or fouled. This was based on information received from catalyst vendors which indicated that if the pressure drop changes by more than 2 inches of water column, the catalyst should be inspected for damage or fouling. For this reason, we feel it was appropriate to specify that the pressure drop across the catalyst should not change by more than 2 inches from the pressure drop measured during the initial performance test. Anything higher than 2 inches might indicate damage or fouling of the catalyst. We feel it is appropriate to maintain the pressure drop requirement as proposed. However, we have reevaluated our position regarding requiring sources to monitor the pressure drop across the oxidation catalyst on a continuous basis and are no longer requiring sources to install a CPMS to monitor this parameter continuously. The pressure drop across the catalyst is not likely to change within short periods of time, but is a parameter the owner and operator might see changing over a longer period of time, not within hours or days. This is consistent with comments that stated that vendors do not treat pressure differential as a continuous operating parameter requirement. Rather it is presented as a maintenance requirement for catalysts on some engines. For this reason, we feel it is appropriate to require sources that must comply with the pressure drop requirement to measure this parameter monthly, as we do not expect the pressure drop across the catalyst to change significantly more frequently than monthly. Regarding the comment that the uniqueness of the installation should be given consideration in whether or not pressure drop is required to be monitored, we feel that we have gathered sufficient information from catalyst vendors that supports requiring the pressure drop to be monitored and maintained monthly. In addition, the commenter did not describe or provide information regarding how the uniqueness of the installation would affect whether or not monitoring and maintaining the pressure drop should be required.

Comment: Many commenters stated that the requirement to measure the temperature rise for rich burn RICE should be removed. One commenter had the opinion that 5 percent difference in temperature is not feasible or workable in practice. While a NSCR catalyst is more likely to show a positive temperature change across the catalyst, very low, or even negative, temperature changes are possible while the catalyst is functioning normally. One commenter did not think it is appropriate to specify that the temperature rise across a NSCR catalyst has to stay within 5 percent of the temperature rise (or any other specific value) measured at the initial source test. The commenter believed that this seems arbitrary. At one facility, the commenter has seen zero temperature change across the catalyst. Yet, NO_x, CO and volatile organic compounds (VOC) reductions were all occurring at high efficiency and in full compliance with requirements. It would be more appropriate to simply require that NSCR be operated in conjunction with an air-to-fuel ratio controller and that the catalyst inlet temperature simply be hot enough to ensure it is working, but not too hot to damage the catalyst.

One commenter said that Table 1b of the proposed rule stipulates that 4SRB RICE must ensure that the temperature rise across the catalyst is no more than 5 percent different. The commenter asked what if the temperature is

10 percent different and would this not represent a higher degree of oxidation. The commenter questioned why this should not be allowed.

Response: As summarized above, we received several comments regarding the requirement in the proposed rule that 4SRB engines monitor and maintain the temperature rise across the NSCR. Based on the information received, we agree with the commenters that such a requirement would be inappropriate and most likely would not provide an accurate representation of how the catalyst is performing. We are including the requirement to measure the catalyst pressure drop monthly and to maintain and continuously monitor the catalyst inlet temperature to ensure that it remains between 750°F and 1250°F. It is our opinion that monitoring and maintaining these two parameters is sufficient to ensure proper catalyst operation. Therefore, we have not included the requirement to maintain the catalyst such that the temperature rise across the catalyst stays within 5 percent of the temperature rise measured during the initial performance test in the final rule.

Comment: One commenter argued that the requirement for an immediate startup, shutdown, and malfunction (SSM) report should indicate that this is required only when the actions addressing the malfunction were inconsistent with the startup, shutdown, and malfunction report (SSMP).

Two commenters stated that EPA should eliminate the immediate SSM report indicated in Table 7, item 2, of the proposed rule. One commenter further noted that any reporting requirements should be consistent with the General Provisions and the December 2002 proposal relating to reporting malfunctions only versus startups and shutdowns.

Two commenters recommended eliminating the requirement for an immediate SSMP in Table 7 of the proposed rule.

Response: We agree that immediate SSMP reports are unnecessary and have the potential of becoming a burdensome activity for sources with frequent startups and shutdowns. We have specified in the final rule that an immediate SSMP report is only required when actions addressing the startup, shutdown, or malfunction were inconsistent with the SSMP.

Comment: Two commenters requested annual compliance reports instead of the requirement of semiannual reporting of compliance reports in §63.6650(3). One of the commenters asked that the language in this paragraph be modified to allow the flexibility for annual compliance reports in order to make the final rule consistent with other MACT standards. The commenter noted that they are seeing in the various State and Federal regulations the requirements for monthly, quarterly, semiannual, and annual reports, and keeping track of these is becoming quite difficult. One of the commenters stated that this will create an unnecessary paperwork burden for both the regulated community as well as for the regulatory agencies. A more reasonable approach would be to require an annual compliance report timed concurrently with the state EPA's typical emissions reporting requirement.

Response: We disagree that semiannual compliance reports are a burden. We feel that the submittal of semiannual reports will assist in identifying problem areas within a reasonable period of time. The requirement for semiannual compliance reporting is not inconsistent with previous MACT standards. Several MACT standards require compliance reports to be prepared and submitted semiannually. Enforcing agencies have been requiring semiannual compliance reports for a long time, and this has worked well and has helped EPA enforce rules appropriately. We feel the submittal of semiannual compliance reports is appropriate for stationary RICE complying with the final rule.

Comment: One commenter stated that readily available electronic records do not have to be stored on-site. In §63.6660(c), the proposed RICE MACT requires that records be kept on-site for the first 2 years following the date of each occurrence, measurement, maintenance, corrective action, report or record. This requirement does not recognize the trend toward computerization of monitoring records. Many sites are making an intentional effort to move away from paper records of air compliance critical data whenever the opportunity presents itself. These electronic records reside on hardware referred to as servers. For a variety of reasons, these servers are not always located at the major source that would be affected by the RICE MACT. There are cases at companies where the server for an affected source is not located in the same State as the affected source. The concept of "readily accessible" should be more important, relative to current records, than the need for them to be on-site at the major source. The commenter urges EPA to recognize the trend to electronic record keeping by changing §63.6660(c) to read as follows: "(c) Each record must be readily accessible in hard copy or electronic form on-site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report or record according to §63.10(b)(1). You may keep the records off-site for the remaining 3 years."

Response: We agree with the commenter and feel that records that can be accessed on-site by a computer are valid and should be considered on-site records. Our understanding of the General Provisions is that it allows the interpretation that records that can be accessed on-site are acceptable. In any case, we have written §63.6660(c) in the final rule according to the commenter's suggestion.

F. Testing

Comment: Several commenters pointed out that there is a 50 parts per million (ppm) NO_x limit advisory with the use of CARB Method 430. The commenters asked EPA to follow the direction of the CARB advisory. One commenter added that due to concerns about matrix interferences with CARB Method 430, as expressed in an advisory released by CARB, the commenter believed that it is inappropriate to include CARB Method 430 as a candidate method until its governing agency has more thoroughly researched method deficiencies and revised the method or rescinded the advisory.

Response: We agree that CARB Method 430 use should not be cited in the final rule. Therefore, we have not included CARB Method 430 as a test method in the final rule.

Comment: A few commenters recommended that EPA include proposed Method 323. One commenter felt that it is imperative that multiple test methods and technological approaches be available for formaldehyde measurement from engines. The EPA Method 323 addresses this need and appears to offer a reasonable alternative to FTIR for formaldehyde testing of engines. The method detection limits are within the range necessary to demonstrate compliance with a formaldehyde based limit. This method was investigated and developed by the Gas Technology Institute (GTI) as a low-cost alternative for engine formaldehyde measurement and has been validated for application to internal combustion engines in research conducted by GTI.

One commenter said that this method has the advantage of actually having been field-validated at the required concentration. Furthermore, it is simpler and less costly than the other methods. It is the commenter's experience that with a similar chilled-impinger method for VOC (Method 25.3), they found it was critical to maintain near-ice-water temperatures in order to achieve 100 percent capture. The method might be modified by adding a final impinger and having that analyzed separately for breakthrough. Sulfur dioxide is listed as an interference, possibly because of its ability to bond with aldehydes. This bond is broken under acidic conditions. If this is found to be a problem, perhaps the sample can be acidified more to break up any complexes.

Response: We agree with the commenter and have included Method 323 as an optional method for natural gas-fired units in the final rule. We plan to develop a FAQ sheet for Method 323. We may include the commenter's suggestion for analyzing for breakthrough with another impinger and a caution to check the impinger exhaust temperature when assessing the data quality.

Comment: One commenter expressed the view that since EPA SW-846 Method 0011 uses a similar analytical approach as CARB Method 430, has not been validated for application to engines, and has quality assurance requirements considered less thorough than CARB Method 430, it should be excluded from the list of acceptable methods.

Response: We agree with the commenter that this method should not be specified as an acceptable method for this application. This method has not been included in the final rule.

Comment: A few commenters stated that EPA should allow ASTM Method D6348 as equivalent to Method 320. One commenter stated that the method is self-validating and includes clarity that the commenter believed will provide better consistency and reduce the likelihood of errors as FTIR becomes more widely implemented by the source test community. The ASTM method was developed and approved following a refereed process and considering the input and review of leading experts in the field.

Response: We identified ASTM D6348-03 as a potential national consensus based method in addition to Method 320 and Method 323. Upon review, we approved this method as an alternative to Method 320 for formaldehyde measurement provided in ASTM D6348-03, Annex 5 (Analyte Spiking Technique), percent R must be greater than or equal to 70 and less than or equal to 130.

Comment: Some commenters stated that quarterly emission testing with CO portable units should not be full performance tests. This provision is burdensome and unnecessary. The final rule should not require that the quarterly emission tests be full performance tests for the following reasons: (1) for full performance tests, engines in load-following applications may need to conduct emissions testing at multiple operating conditions, in accordance with the General Provisions' requirement that performance tests be conducted for representative conditions; (2) facilities with load-following operations, such as natural gas transmission and storage, may not be able to operate the engines over the full range of operating conditions on a quarterly basis; (3) full performance tests impose significant burden on the owner or operator to develop site-specific test plans, provide notification to the permitting authority 60 days in advance of the test, and submit the full results within 60 days of completion of the testing; and (4) review of other MACT standards indicates that full performance tests are not required more frequently than annually.

<u>Response</u>: We agree with the commenters that requiring full performance tests quarterly for sources complying with CO reduction requirement may impose significant burden on the owner or operator to develop site-specific test plans, provide notification to the permitting authority 60 days in advance of the test, and submit the full results within 60 days of completion of the testing. We now feel that quarterly testing for CO is unnecessary and inappropriate. In the final rule, we have specified that new 2SLB, new 4SLB, and new CI engines complying with requirement to reduce CO emissions must conduct semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved. Semiannual performance testing for CO in addition to monitoring and maintaining operating parameters will ensure, on an ongoing basis, that the applicable CO percent reduction requirement is being met. After demonstrating compliance for two consecutive tests, the frequency can be reduced to annually. However, if an annual performance test indicates a deviation of CO emissions from the CO reduction requirement, you must return to semiannual performance tests.

<u>Comment</u>: Some commenters contended that additional

performance tests should not be required when NSCR or oxidation catalysts are replaced with identical units.

Response: We disagree. Additional performance tests are required to be performed even though an emission control device is replaced with an identical unit. The performance of identical catalysts can vary significantly, and it is not guaranteed that the NSCR or oxidation catalyst will achieve the same performance levels.

Comment: One commenter asked that EPA include similar language as in the Petroleum Refinery MACT for Catalytic Cracking Units which has the provision to make adjustments to one of the monitored operating parameters to acknowledge that it may not be possible to achieve worst-case operation during the performance test. In this scenario, the testing of a similar unit should be allowed to serve as the basis for establishing acceptable inlet temperatures.

One commenter remarked that initial performance tests should only have to be performed on one engine when an installation is provided with several identical engines.

Response: We do not agree that it is appropriate to allow a facility with identical engines to conduct testing on only one of the units to establish operating parameters. Although the units are identical, operating parameters, as well as emissions, could vary significantly from unit to unit. We do not agree that it is appropriate to allow a facility with identical engines to conduct performance tests on only one of the units to demonstrate compliance with the emission limits for all of the identical units. It is our experience that emissions from identical units can vary significantly.

Comment: One commenter stated that manufacturer's performance data should be allowable in lieu of an initial performance test.

Response: We are not allowing manufacturer's performance data in lieu of an initial performance test. Performance data provided by the manufacturer may not be representative of how the engine will perform in the field and may overestimate the engine's performance.

Comment: One commenter contended that the stack testing should be no more frequent than semiannual for CO. The stack testing for formaldehyde should be no more frequent than annual. The commenter added that both should also include the ability to go to even less frequent testing based upon good performance.

Response: We agree with the commenter and feel that it is appropriate to require semiannual performance tests for CO for sources meeting the CO percent reduction requirement. This has been specified in the final rule. The rationale for reducing the CO testing requirement was previously discussed. For CO stack testing, we also agree with the commenter that it is appropriate to allow sources that demonstrate compliance for two consecutive tests, to reduce the frequency of subsequent performance tests to annually. However, if an annual performance test indicates a deviation of CO emissions from the CO reduction requirement, sources must return to semiannual performance tests. Regarding formaldehyde testing, we disagree with the commenter and feel that we have appropriately set the testing requirements for formaldehyde at semiannual performance tests. Periodic stack testing for CO and formaldehyde will ensure, on an ongoing basis, that the source is meeting the emission limitation requirements. For formaldehyde stack testing, if you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. However, if the results of any subsequent annual performance test indicate that the stationary engine is not in compliance with the formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.

Comment: One commenter was of the opinion that EPA should allow facilities complying with the formaldehyde emission limitation to use existing performance test data to demonstrate initial compliance with the emission limit.

Response: We agree with the commenter that existing performance test data can be used to demonstrate compliance with the emission limit. The facility must petition the Administrator for approval, and demonstrate that the tests were conducted using the same test methods specified in the subpart, the test method procedures were correctly followed, no process or equipment changes have been made since the test, and the data is of good quality and is less than 2 years old. Existing test data can only be used to demonstrate initial compliance; after the initial compliance demonstration, facilities must then begin to follow the semiannual compliance test schedule. This has been specified in the final rule.

G. Risk-Based Approaches

The preamble to the proposed rule requested comment on whether there might be further ways to structure the final rule to focus on the facilities which pose significant risks and avoid the imposition of high costs on facilities that pose little risk to public health and the environment. Specifically, we requested comment on the technical and legal viability of three risk-based approaches: an applicability cutoff for threshold pollutants under the authority of CAA section 112(d)(4), subcategorization and delisting under the authority of CAA section 112(c)(1) and (9), and a concentration-based applicability threshold.[2]

We indicated that we would evaluate all comments before determining whether either approach would be included in the final rule. Numerous commenters submitted detailed comments on these risk-based approaches. These comments are summarized in the Response-to-Comments document (see SUPPLEMENTARY INFORMATION section).

Based on our consideration of the comments received and other factors, we have decided not to include the risk-based approaches in today's final rule. The risk-based approaches described in the proposed rule and addressed in the comments we received raise a number of complex issues. In addition, we must issue the final rule expeditiously because the statutory deadline for promulgation has passed, and we have agreed to a binding schedule in a consent decree entered in Sierra Club v. Whitman, Civil Action No. 1:01CV01537 (D.D.C.). Given the range of issues raised by the risk-based approaches and the need to promulgate a final rule expeditiously, we feel that it is not appropriate to include any risk-based approaches in today's final rule.

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[2] See 68 FR 1276 (January 9, 2003) (Plywood and Composite Wood Products Proposed NESHAP) and Docket ID No. A-98-44 (White Papers submitted to EPA outlining the risk-based approaches).

H. Other

Comment: One commenter stated that NO_x increases due to oxidation catalysts for 2SLB and 4SLB engines should be considered in evaluating the cost and benefits of the proposed rule. Test results for 2SLB and 4SLB engines (Docket ID Nos. OAR-2002-0059 and A-95-35) equipped with oxidation catalysts indicate an increase of NO_x emissions up to about 15 percent and 12 percent for 2SLB and 4SLB engines, respectively. It is not clear that the impacts of this NO_x increase has been addressed with respect to the ability of sources to comply with State and local NO_x limits or impacts on the environment.

Response: We did consider NO_x increases due to oxidation catalysts for 2SLB and 4SLB engines. However, the NO_x increases resulting from 2SLB and 4SLB installing oxidation catalyst controls to comply with the final rule are far less than the NO_x decreases resulting from 4SRB engines installing NSCR controls to comply with the final rule, resulting in a net decrease in NO_x emissions due to the final rule and a benefit to the environment overall. In addition, oxidation catalysts are not specifically required by the final rule and as only new 2SLB and new 4SLB engines are affected by the final rule, sources that are concerned about NO_x emissions can use other methods of HAP emission control that are less problematic from a NO_x control perspective (like in-cylinder controls), or they can use NO_x control to reduce NO_x from engines using oxidation catalysts.

Comment: One commenter contended that data from testing of 2SLB and 4SLB should be disallowed. The commenter provided the following reasons: (1) The range of engine operating conditions in the testing of the 2SLB engine and quite probably the 4SLB engine are far leaner than the leanest engine in the pipeline RICE fleet. This is indicated by the extremely low NO_x emissions. (2) engines equipped with pre-combustion chambers operating extremely lean are not typical examples of the 2SLB and 4SLB fleet. (3) the range of exhaust temperatures, air-to-fuel ratios, and exhaust oxygen are not typical of 2SLB and 4SLB. (4) Engines were laboratory research engines. They were not equipped with turbochargers, but with turbocharger simulators that do not have the same traits as a turbocharger. (5) Found no information in the piping diagrams of insulation on the ducting and manifolds leading from the engine to the catalyst. Certainly all ducting is insulated in industry. The EPA needs to determine if any insulation was in place. (6) The following excerpt from page 77840 of the proposed rule is not true: "In general, higher exhaust temperatures lead to better catalyst performance. This difference in temperatures is a function of the inherent design of these engine types and cannot be controlled by the operator." By controlling the air-to-fuel ratio of the engine, the exhaust gas temperature, and thus the catalyst inlet temperature, can be precisely controlled. (7) If HAP data from the 2SLB and 4SLB testing is allowed to stand, then this testing must become the definitive work on all pollutants tested as well, including NO_x. The NO_x data should be forwarded to the criteria pollutant group.

One commenter disagreed that the engine at CSU is representative of 2SLB engines in the industry due to low NO_x levels, high levels of oxygen, and low exhaust temperatures. The 2SLB engine was running considerably leaner than similar model engines at similar conditions.

Response: We compared these parameters to other 2SLB and 4SLB engines for which we have information in the emissions database. The NO_x and oxygen levels and exhaust temperatures for the 2SLB and 4SLB engines tested at CSU are similar to those observed for other non-CSU 2SLB and 4SLB engines in the emissions database. This analysis is presented in a memorandum included in the rule docket (Docket ID Nos. OAR-2002-0059 and A-95-35). We feel that the 2SLB and 4SLB engines tested at CSU are representative of 2SLB and 4SLB engines in the industry. As far as insulation is concerned, the catalyst inlet temperature recorded should represent catalyst performance at that temperature regardless of insulation presence or absence. It should be remembered that the MACT standard for new sources under CAA section 112(d) is based on the level of control of the best controlled similar source.

Comment: One commenter stated that the testing did not include in its test protocol dynamic spiking that is required in Method 320 which leaves some question to the integrity of the sample measured in the test program.

Response: An alternative quality assurance procedure was proposed and followed resulting in data of sufficient quality. The entire FTIR sampling analysis system was validated on a 2SLB engine by a dynamic spiking of formaldehyde, acrolein, and acetaldehyde. The data were assessed following Method 301 criteria. Then, on a daily basis, the analyzer was checked for linearity and alignment, a diagnostic or transfer standard consisting of the CO was used to confirm accuracy, a second diagnostic standard consisting of CO_2, CO, methane, and NO_x was introduced using the same procedure. Then to check sampling system integrity, a formaldehyde standard was introduced directly into the instrument and a reading obtained, then it was introduced into the sampling system at the sample probe upstream of the filter and another reading obtained. The sampling system pass/fail criterion was 100 percent ±10 percent of the direct-to-the-analyzer reading. Finally, the diagnostic and system integrity procedures were repeated at the end of each day testing. This procedure resulted in data of sufficient quality.

Comment: One commenter asked that EPA clarify retesting requirements on new sources. Section 63.6610 of the proposed rule is ambiguous on the General Provisions requirement for some new sources to retest 3 years after promulgation in §63.7(a)(2)(ix). Table 8, item 24, or the proposed rule does not clarify the issue.

Response: Section 63.7(a)(2)(ix) of the General Provisions discusses performance test dates if the promulgated standard is more stringent that the proposed standard. Sources that commenced construction or reconstruction between the proposal and promulgation have the option to demonstrate compliance with either the proposed or the promulgated standard. If the owner or operator chooses to comply with the proposed standard initially, the owner or operator must conduct a second performance test within 3 years to demonstrate compliance with the promulgated standard. Since the promulgated standard is in some cases more stringent than the proposed standard, we have specified in §63.6610(c) of the final rule that sources that commenced construction or reconstruction between the proposal and promulgated have this option.

<u>Comment</u>: A few commenters asserted that the basis for any size threshold should be expressed in site-rated HP as opposed to manufacturer’s nameplate HP. One commenter gave the following reasons: (1) the database used by EPA to determine the MACT floor provisions likely includes the site-rated HP, based on the facility’s air permit; (2) stationary RICE are typically identified by site-rated HP, rather than manufacturer’s nameplate HP in the facility’s title V permit and not all engines have HP on the nameplate; and (3) the Federal Energy Regulatory Commission certified HP for natural gas transmission facilities are issued based on site-rated HP.

<u>Response</u>: We contacted one of the commenters who submitted this comment and also an engine manufacturer. Information received from both sources indicated that there may be differences between site-rated HP and the manufacturer’s nameplate rating. Factors such as altitude, temperature, fuel, etc. affect what the site-rated HP will be for the engine at a specific location. Some manufacturers include the specific site-rating on the

nameplate of the engine, which is a HP rating which has been adjusted to account for the characteristics of the location the engine is installed at as well as other parameters affecting the engine rating. For these reasons, we agree with the commenters that it is appropriate to use the site-rated HP as opposed to the manufacturer's nameplate rating for the size applicability criteria, because relying on the manufacturer's nameplate rating may not be representative of the capability of the engine on-site. This has been specified in the final rule.

Comment: Some commenters asked that EPA include non-aggregation provisions for transmission and storage facilities for the Transmission & Storage (T&S) MACT.

Response: We have incorporated this comment in the final rule. The non-aggregation provisions for transmission and storage facilities from the Natural Gas Transmission and Storage MACT (40 CFR part 63, subpart HHH), which are found in the definition of major source in that subpart, are as follows: (1) emissions from any pipeline compressor station or pump station shall not be aggregated with emissions from other similar units, whether or not such units are in a contiguous area or under common control; and (2) emissions from processes, operations, and equipment that are not part of the same natural gas transmission and storage facility, as defined in this section, shall not be aggregated.

The non-aggregation provisions in (1) above were already included in the proposed definition of major source for the RICE NESHAP and have been retained in the final rule. The non-aggregation provisions in (2) above have also been added to the definition of major source for the RICE NESHAP.

Comment: Some commenters requested that EPA include the provisions to calculate potential emissions for storage facilities from the T&S MACT.

Response: We agree with the commenters and have incorporated their comment in the final rule by modifying the definition of potential to emit in the final rule to include the following: "For oil and natural gas production facilities subject to subpart HH of this part, the potential to emit provisions in §63.760(a) may be used. For natural gas transmission and storage facilities subject to subpart HHH of this part, the maximum annual facility gas throughput for storage facilities may be determined according to §63.1270(a)(1) and the maximum annual throughput for transmission facilities may be may be determined according to §63.1270(a)(2)."

Comment: Two commenters asked that EPA list diesel PM as a HAP. One of the commenters stated that if EPA fails to act on its own initiative, the commenter will submit a formal listing petition to EPA. One commenter recommended including diesel PM in this MACT and including limits and control measures.

Response: We acknowledge the comments on this issue. However, we are not prepared at this time to list diesel PM as a regulated HAP, at least not in the context of the final rule. We proposed the rule for the purposes of promulgating regulations for emissions from stationary RICE that were already listed under section 112 of the CAA. While we did mention the diesel exhaust issue, we did not include any detailed discussion on the separate issue of whether any additional pollutants should be added to the list of regulated pollutants under CAA section 112. The decision regarding whether to list diesel PM entails several significant issues that have not been discussed in the context of the final rule. Therefore, it would be inappropriate to take final action on this comment in the context of the final rule.

V. Summary of Environmental, Energy and Economic Impacts

A. What are the air quality impacts?

The final rule will reduce total HAP emissions from stationary RICE by an estimated 5,600 tpy in the 5th year after the standards are implemented. We estimate that approximately 1,800 existing 4SRB stationary RICE will be affected by the final rule. In addition, we estimate that approximately 1,600 new 2SLB, 4SLB and 4SRB stationary RICE, and CI stationary RICE will be affected by the final rule each year for the next 5 years. At the end of the 5th year, it is estimated that 8,100 new stationary RICE will be subject to the final rule.

To estimate air impacts, HAP emissions from stationary RICE were estimated using average emission factors from the emissions database. It was also assumed that each stationary RICE is operated for 6,500 hours annually. The total national HAP emissions reductions are the sum of formaldehyde, acetaldehyde, acrolein, and methanol emissions reductions.

In addition to HAP emissions reductions, the final rule will reduce criteria pollutant emissions including CO, VOC, NO_x, and PM. The application of NSCR controls to 4SRB engines (the technology on which MACT for 4SRB engines is based) will also reduce NO_x emissions by 90 percent. It is possible that oxidation catalyst controls could be used to meet the 4SRB emission standards, but it is expected that the costs of controls will be similar for both systems. Assuming that 60 percent of the 4SRB (new and existing) engines that are covered by the emission standards will use

NSCR, the emissions reductions of NO_x in the 5th year after promulgation are calculated to be about 167,900 tpy.

B. What are the cost impacts?

A list of 26 model stationary RICE was developed to represent the range of existing stationary RICE. Information was obtained from catalyst vendors on equipment costs for oxidation catalyst and NSCR. This information was then used to estimate the costs of the final rule for each model stationary RICE following methodologies from the Office of Air Quality Planning and Standards (OAQPS) Control Cost Manual. These cost estimates for model stationary RICE were extrapolated to the national population of stationary RICE in the United States, and national impacts were determined.

The total national capital cost for the final rule for existing stationary RICE is estimated to be approximately $68 million, with a total national annual cost of $35 million in the 5th year. The total national capital cost for the final rule for new stationary RICE by the 5th year is estimated to be approximately $371 million, with a total national annual cost of $213 million in the 5th year.

C. What are the economic impacts?

We prepared an economic impact analysis to evaluate the primary and secondary impacts the final rule would have on the producers and consumers of RICE, and society as a whole. The affected engines operate in over 30 different manufacturing markets, but a large portion are located in the oil and gas exploration industry, the oil and gas pipeline (transmission) industry, the mining and quarrying of non-metallic minerals industry, the chemicals and allied products industry, and the electricity and gas services industry. Taken together, these industries can have an influence on the price and demand for fuels used in the energy market (i.e., petroleum, natural gas, electricity, and coal). Therefore, our analysis evaluates the impacts on each of the 30 different manufacturing markets affected by the final rule, as well as the combined effect on the market for energy. The total annualized social cost (in 1998 dollars) of the final rule is $248 million but this cost is spread across all 30 markets and the fuel markets. Overall, our analysis indicates a minimal change in prices and quantity produced in most of the fuel markets. The distribution of impacts on the fuel markets and the specific manufacturing market segments evaluated are summarized in Table 1 of this preamble.

Table 1: Economic Impact of Final RICE Rule on Affected Market Sectors

Market Sector	Change in Price	Change in Market Output	Total Social Cost (millions of 1998$)
Fuel Markets:[a]			
Petroleum	0.015%	-0.003%	-$15.7
Natural Gas	0.300%	-0.040%	-$102.5
Electricity	0.040%	0.009%	$26.6
Coal	0.008%	0.008%	$1.1
Subtotal:			-$90.4
Sectors of Energy Consumption:[b]			
Commercial Sector	–	–	-$161.6
Residential Sector	–	–	-$98.9
Transportation Sector	–	–	-$47.0
Mining and Quarrying	0.050%	-0.001%	-$52.6
Food and Kindred Products	0.002%	-0.002%	-$16.2
Paper and Allied Products	0.002%	-0.003%	-$14.5
Chemicals and Allied Products	0.004%	-0.006%	-$49.8
Primary Metals	0.004%	-0.004%	-18.9
Fabricated Metal Products	0.002%	-0.000%	5.0
Nonmetallic Mineral Products	0.005%	-0.005%	-$9.9
Other Manufacturing Markets	0.0%-0.001%	0.0%-0.001%	-$53.8

[a] Only changes in producer surplus (i.e., producer's share of regulatory costs) are reported for the Fuel Markets which represent the producers of energy. Sectors of energy consumption - commercial, residential, and transportation - have reported changes in consumer surplus only, and thus do not have reported changes in price and output. A combination of these costs will represent total social costs for the energy market in the economy.

Because a significant portion of the engines affected by the final rule use natural gas as a fuel source, it is not surprising to see the natural gas fuel market with the largest portion of the social costs. Although the natural gas market has a greater share of the regulatory burden, the overall impact on prices and output is about three-tenths of one percent, which is considered to be a minor economic impact on this industry. The change in the price of natural gas is not expected to influence the purchase decisions for new engines. Our analysis indicates that at most, five fewer engines out of over 20,000 engines will be purchased as a result of economic impacts associated with the final rule. The electricity and coal markets may experience a slight gain in revenues due to some fuel switching from natural gas to coal or electricity.

The total welfare loss for the manufacturing industries affected by the final rule is estimated to be approximately $103.0 million for consumers and $117.7 million for producers in the aggregate. In comparison to the energy expenditures of these industries (estimated to be $101.2 billion), the cost of the final rule to producers as a percentage of their fuel expenditures is 0.12 percent. For consumers, the total value of shipments for the affected industries is $3.95 trillion in 1998, so the cost to consumers as a percentage of spending on the outputs from these industries is nearly zero, or 0.003 percent.

The cost to residential consumers at $98.9 million is larger than for any individual manufacturing market, but less than the total consumer surplus losses in the manufacturing industries. In comparison, the social cost burden to residential consumers of fuel is 0.08 percent of residential energy expenditures ($98.9 million/$131.06 billion). The commercial sector of energy users also experiences a moderate portion of total social costs at an estimated $69.3 million. This amount is also larger than for any individual manufacturing sector, but is an aggregate across all commercial NAICS codes. As a percentage of fuel expenditures by this sector of fuel consumers, the regulatory burden is 0.07 percent ($69.3 million/$96.86 billion). The cost to transportation consumers is estimated to be $47.0 million. This cost represents 0.02 percent ($47.0 million/$188.13 billion) of energy expenditures for the transportation sector.

Therefore, giving consideration to the minimal changes in prices and output in nearly all markets, and the fact that the regulatory costs that are shared by commercial, residential, and transportation users of fuel energy are a small fraction of typical energy expenditures in these sectors each year, we conclude that the economic impacts of the final rule will not be significant to any one sector of the economy.

The economic analysis described above assumed that all existing 4SRB engines and all new engines were located at major HAP emission sources and are required to install controls. However, as stated previously, we anticipate that at least 60 percent of the stationary RICE will be located at area sources which are not affected by the final rule. Therefore, the economic impacts described above would be reduced.

D. What are the non-air health, environmental and energy impacts?

We do not expect any significant wastewater, solid waste, or energy impacts resulting from the final rule. Energy impacts associated with the final rule would be due to additional energy consumption that the final rule would require by installing and operating control equipment. The only energy requirement for the operation of the control technologies is a very small increase in fuel consumption resulting from back pressure caused by the emission control system.

VI. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993), we must determine whether a regulatory action is "significant" and, therefore, subject to review by the Office of Management and Budget (OMB) and the requirements of the Executive Order. The Executive Order defines "significant regulatory action" as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs, or the rights and obligations of recipients thereof; or

(4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, we have determined that the final rule is a "significant regulatory action" because it could have an annual effect on the economy of over $100 million. Consequently, this action was submitted to OMB for review under Executive Order 12866. Any written comments from OMB and written EPA responses are available in the docket.

As stipulated in Executive Order 12866, in deciding how or whether to regulate, EPA is required to assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. To this end, EPA prepared a detailed benefit-cost analysis in the "Regulatory Impact Analysis of the Reciprocating Internal Combustion Engines NESHAP" which is contained in the docket. The following is a summary of the benefit-cost analysis.

It is estimated that 5 years after implementation of the final rule, HAP will be reduced by 5,600 tpy due to reductions in formaldehyde, acetaldehyde, acrolein, methanol, and several other HAP from some existing and all new internal combustion engines. Formaldehyde and acetaldehyde have been classified as "probable human carcinogens" based on scientific studies conducted over the past 20 years. These studies have determined a relationship between exposure to these HAP and the onset of cancer; however, there are some questions remaining on how cancers that may result from exposure to these HAP can be quantified in terms of dollars. Acrolein, methanol and the other HAP emitted from RICE sources are not considered carcinogenic but have been reported to cause several noncarcinogenic effects.

The control technology to reduce the level of HAP emitted from RICE are also expected to reduce emissions of criteria pollutants, primarily CO, NO_x, and PM, however, VOC are also reduced to a minor extent. It is estimated that CO emissions reductions totals approximately 234,400 tpy, NO_x emissions reductions total approximately 167,900 tpy, and PM emissions reductions total approximately 3,700 tpy. These reductions occur from new and existing engines in operation 5 years after the implementation of the rule and are expected to continue throughout the life of the engines and continue to grow as new engines (that otherwise would not be controlled) are purchased for operation.

Human health effects associated with exposure to CO include cardiovascular system and CNS effects, which are directly related to reduced oxygen content of blood and which can result in modification of visual perception, hearing, motor and sensorimotor performance, vigilance, and cognitive ability. Emissions of NO_x can transform into PM in the atmosphere which produces a variety of health and welfare effects. In general, exposure to high concentrations of $PM_{2.5}$ may aggravate existing respiratory and cardiovascular disease including asthma, bronchitis and emphysema, especially in children and the elderly. Nitrogen oxides are also contributors to acid deposition, or acid rain which causes acidification of lakes and streams and can damage trees, crops, historic buildings and statues. Exposure to $PM_{2.5}$ can lead to decreased lung function, and alterations in lung tissue and structure and in respiratory tract defense mechanisms which may then lead to increased respiratory symptoms and disease, or in more severe cases, premature death or increased hospital admissions and emergency room visits. Children, the elderly, and people with cardiopulmonary disease, such as asthma, are most at risk from these health effects. Fine PM can also form a haze that reduces the visibility of scenic areas, can cause acidification of water bodies, and have other impacts on soil, plants, and materials. As NO_x emissions transform into PM, they can lead to the same health and welfare effects listed above.

At the present time, the Agency cannot provide a monetary estimate for the benefits associated with the reductions in CO. For NO_x and PM, we conducted an air quality assessment to determine the change in concentrations of PM that result from reductions of NO_x and direct emissions of PM at all sources of RICE. Because we are unable to identify the location of all affected existing and new sources of RICE, our analysis is conducted in two phases. In the first phase, we conduct an air quality analysis assuming a 50 percent reduction of 1996-levels of NO_x emissions and a 100 percent reduction of PM_{10} emissions for all RICE sources throughout the country. The results of this analysis serve as a reasonable approximation of air quality changes to transfer to the final rule's emissions reductions at affected sources. The results of the air quality assessment served as input to a model that estimates the benefits related to the health effects listed above. In the second phase of our analysis, the value of the benefits per ton of NO_x and PM reduced (e.g., $ benefit/ton reduced) associated with the air quality scenarios are then applied to the tons of NO_x and PM emissions expected to be reduced by the final rule. We also used the benefit transfer method to value improvements in ozone based on the transfer of benefit values from an analysis of the 1998 NO_x SIP call. In addition, although the benefits of the welfare effects of NO_x are monetized in other Agency analyses, we chose not to do an analysis of the improvements in welfare effects that will result from the final rule. Alternatively, we could transfer the estimates of welfare benefits from these other studies to this analysis, but chose not to do so because these studies with estimated welfare benefits differ in the source and location of emissions and associated impacted populations.

The benefit estimates derived from the air quality modeling in the first phase of our analysis uses an analytical structure and sequence similar to that used in the benefits analyses for the proposed Nonroad Diesel rule and proposed Integrated Air Quality Rule (IAQR) and in the "section 812 studies" analysis of the total benefits and costs of the CAA. We used many of the same models and assumptions used in the Nonroad Diesel and IAQR analyses as well as other Regulatory Impact Analyses (RIA) prepared by the Office of Air and Radiation. By adopting the major design elements, models, and assumptions developed for the section 812 studies and other RIA, we have largely relied on methods which have already received extensive review by the independent Science Advisory Board (SAB), the National Academies of Sciences, by the public, and by other federal agencies.

The benefits transfer method used in the second phase of the analysis is similar to that used to estimate benefits at the proposal of the rule, and in the proposed Industrial Boilers and Process Heaters NESHAP. A similar method has also been used in recent benefits analyses for the proposed Nonroad Large Spark-Ignition Engines and Recreational

Engines rule (67 FR 68241, November 8, 2002).

The sum of benefits from the two phases of analysis and the ozone benefit transfer estimate provide an estimate of the total benefits of the final rule. Total benefits of the final rule are approximately $280 million (1998$).

Every benefit-cost analysis examining the potential effects of a change in environmental protection requirements is limited, to some extent, by data gaps, limitations in model capabilities (such as geographic coverage), and uncertainties in the underlying scientific and economic studies used to configure the benefit and cost models. Deficiencies in the scientific literature often result in the inability to estimate changes in health and environmental effects. Deficiencies in the economics literature often result in the inability to assign economic values even to those health and environmental outcomes that can be quantified. While these general uncertainties in the underlying scientific and economics literatures are discussed in detail in the RIA and its supporting documents and references, the key uncertainties which have a bearing on the results of the benefit-cost analysis of today's action are the following:

(1) The exclusion of potentially significant benefit categories (e.g., health and ecological benefits of

reduction in HAP emissions);

(2) Errors in measurement and projection for variables such as population growth;

(3) Uncertainties in the estimation of future year emissions inventories and air quality;

(4) Uncertainties associated with the extrapolation of air quality monitoring data to some unmonitored areas required to better capture the effects of the standards on the affected population;

(5) Variability in the estimated relationships of health and welfare effects to changes in pollutant concentrations; and

(6) Uncertainties associated with the benefit transfer approach.

Despite these uncertainties, we have determined that the benefit-cost analysis provides a reasonable indication of the expected economic benefits of the final rule under a given set of assumptions.

In addition to the presentation of quantified health benefits, our estimate also includes a “B” to represent those additional health and environmental benefits which could not be expressed in quantitative incidence and/or economic value terms. A full appreciation of the overall economic consequences of the RICE NESHAP requires consideration of all benefits and costs expected to result from the new standards, not just those benefits and costs which could be expressed here in dollar terms. A full listing of the benefit categories that could not be quantified or monetized in our estimate are provided in Table 2 of this preamble.

Table 2. Unquantified Benefit Categories from RICE Emissions Reductions			
	Unquantified Benefit Categories Associated with HAP	**Unquantified Benefit Categories Associated with Ozone**	**Unquantified Benefit Categories Associated with PM**

Health Categories	Carcinogenicity mortality Genotoxicity mortality Non-Cancer lethality Pulmonary function decrement Dermal irritation Eye irritation Neurotoxicity Immunotoxicity Pulmonary function decrement Liver damage Gastrointestinal toxicity Kidney damage Cardiovascular impairment Hematopoietic (Blood disorders) Reproductive/ Developmental toxicity	Airway responsiveness Pulmonary inflammation Increased susceptibility to respiratory infection Acute inflammation and respiratory cell damage Chronic respiratory damage/Premature aging of lungs Emergency room visits for asthma	Changes in pulmonary function Morphological changes Altered host defense mechanisms Cancer Other chronic respiratory disease Emergency room visits for asthma Lower and upper respiratory symptoms Acute bronchitis Shortness of breath

Welfare Categories	Corrosion/ Deterioration Unpleasant odors Transportation safety concerns Yield reductions/ Foliar injury Biomass decrease Species richness decline Species diversity decline Community size decrease Organism lifespan decrease Trophic web shortening	Ecosystem and vegetation effects in Class I areas (e.g., national parks) Damage to urban ornamentals (e.g.,grass, flowers, shrubs, and trees in urban areas) Commercial field crops Fruit and vegetable crops Reduced yields of tree seedlings, commercial and non-commercial forests Damage to ecosystems Materials damage	Materials damage Damage to ecosystems (e.g., acid sulfate deposition) Nitrates in drinking water

Benefit-cost comparison (or net benefits) is another tool used to evaluate the reallocation of society's resources needed to address the pollution externality created by the operation of RICE units. The additional costs of internalizing the pollution produced at major sources of emissions from RICE units is compared to the improvement in society's well-being from a cleaner and healthier environment. Comparing benefits of the final rule to the costs imposed by alternative ways to control emissions optimally identifies a strategy that results in the highest net benefit to society. In the case of the RICE NESHAP, we are specifying only one option, the minimal level of control mandated by the CAA, or the MACT floor.

Based on estimated compliance costs (control + administrative costs associated with Paperwork Reduction Act requirements associated with the final rule and predicted changes in the price and output of electricity and other affected products), the estimated social costs of the RICE NESHAP are $248 million (1998$). Social costs are different from compliance costs in that social costs take into account the interactions between affected producers and the consumers of affected products in response to the imposition of the compliance costs.

As explained above, we estimate $280 million in benefits from the final rule, compared to $248 million in costs. Thus, the total benefits (associated with NO_x and PM reductions) exceed the estimated total costs of the final rule by $30 million + B. It is important to put the results of this analysis in the proper context. The large benefit estimate is not attributable to reducing human and environmental exposure to the HAP that are reduced by the final rule. It arises from ancillary reductions in PM and NO_x that result from controls aimed at complying with the NESHAP. Although consideration of ancillary benefits is reasonable, we note that these benefits are not uniquely attributable to the final rule. The Agency has determined that the key rationale for controlling formaldehyde, acetaldehyde, acrolein, methanol, and the other HAP associated with the final rule is to reduce public and environmental exposure to these HAP, thereby reducing risk to public health and wildlife. Although the available science does not support quantification of these benefits at this time, the Agency has determined that the qualitative benefits are large enough to justify substantial investment in these emissions reductions.

It should be recognized, however, that this analysis does not account for many of the potential benefits that may result from these actions. The net benefits would be greater if all the benefits of the other pollutant reductions could be quantified. Notable omissions to the net benefits include all benefits of HAP reductions, including reduced cancer incidences, toxic morbidity effects, and cardiovascular and CNS effects, and all welfare effects from reduction of ambient PM and SO_2.

Table 3 of this preamble presents a summary of the costs, emissions reductions, and quantifiable benefits by engine type. Table 4 of this preamble presents a summary of net benefits. Approximately 90 percent of the total benefits ($255 million + B) are associated with NO_x reductions from the 4SRB subcategory for new and existing engines. Approximately 10 percent of the total benefits ($25 million + B) are associated with the PM reductions from the compression ignition engine subcategory at new sources.

In both cases, net benefits would be greater if all the benefits of the HAP and other pollutant reductions could be quantified. Notable omissions to the net benefits include all benefits of HAP and CO reductions, including reduced cancer incidences, toxic morbidity effects, and cardiovascular and CNS effects. It is also important to note that not all benefits of NO_x reductions have been monetized. Categories which have contributed significantly to monetized benefits in past analyses (see the RIA for the Heavy Duty Engine/Diesel standards) include commercial agriculture and forestry, recreational and residential visibility improvements, and estuarine improvements.

Table 3. Summary of Costs, Emission Reductions, and Quantifiable Benefits by Engine Type

Type of Engine	**Total Annualized Cost (million $/yr in 2005)**	**Emission Reductions[a] (tons/yr in 2005)**				**Quantifiable Annual Monetized Benefits[b] (million $/yr in 2005)**
		HAP	**CO**	**NO_x**	**PM**	
2SLB - New	$3	250	2,025	0	0	B_1

4SLB - New	$64	4,035	36,240	0	0	B_3
4SRB - Existing	$37	230	98,040	69,900	0	$105 + B_5
4SRB - New	$47	215	91,820	98,000	0	$150 + B_9
CI - New	$96	305	6,320	0	3,700	$25 + B_{13}
Total	$248	5,035	234,445	167,900	3,700	$280 + B

[a] All benefits values are rounded to the nearest $5 million.
[b] Benefits of HAP and CO emissions reductions are not quantified in this analysis and, therefore, are not presented in this table. The quantifiable benefits are from emissions reductions of NO_x and PM only. For notational purposes, unquantified benefits are indicated with a "B" to represent monetary benefits. A detailed listing of unquantified NO_x, PM, and HAP related health effects is provided in Table 2 of this preamble.

Table 4. Annual Net Benefits of the RICE NESHAP in 2005

	Million 1998$[a]
Social Costs[b]	$250
Social Benefits[b,c]:	
HAP-related benefits	Not monetized
CO-related benefits	Not monetized
Ozone- and PM-related Welfare benefits	Not monetized
Ozone- and PM-related health benefits:	$280 + B
Net Benefits (Benefits-Costs)[c]:	$30 + B

[a] All costs and benefits are rounded to the nearest $5 million.
[b] Note that costs are the total costs of reducing all pollutants, including HAP and CO, as well as NO_x and PM_{10}. Benefits in this table are associated only with PM and NO_x reductions.
[c] Not all possible benefits or disbenefits are quantified

and monetized in this analysis. Potential benefit categories that have not been quantified and monetized are listed in Table 2 of this preamble. B is the sum of all unquantified benefits and disbenefits.

B. Paperwork Reduction Act

The information collection requirements in the final rule have been submitted for approval to OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. The information requirements are not enforceable until OMB approves them.

The information requirements are based on notification, recordkeeping, and reporting requirements in the NESHAP General Provisions (40 CFR part 63, subpart A), which are mandatory for all operators subject to national emission standards. These recordkeeping and reporting requirements are specifically authorized by section 114 of the CAA (42 U.S.C. 7414). All information submitted to EPA pursuant to the recordkeeping and reporting requirements for which a claim of confidentiality is made is safeguarded according to Agency policies set forth in 40 CFR part 2, subpart B.

The final rule will require maintenance inspections of the control devices but will not require any notifications or reports beyond those required by the General Provisions. The recordkeeping requirements require only the specific information needed to determine compliance.

The annual monitoring, reporting, and recordkeeping burden for this collection (averaged over the first 3 years after the effective date of the final rule) is estimated to be 141,984 labor hours per year at a total annual cost of $11,377,592. This estimate includes a one-time performance test, semiannual excess emission reports, maintenance inspections, notifications, and recordkeeping. Total capital/startup costs associated with the monitoring requirements over the 3-year period of the information collection request (ICR) are estimated at $5,302,416 (an average of $1,767,472 per year), with operation and maintenance costs of $1,206,212/yr.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An Agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in 40 CFR are listed in 40 CFR part 9. When the ICR is approved by OMB, the Agency will publish a technical amendment to 40 CFR part 9 in the Federal Register to display the OMB control number for the approved information collection requirements contained in the final rule.

C. Regulatory Flexibility Act

We have determined that it is not necessary to prepare a regulatory flexibility analysis in connection with the final rule.

For purposes of assessing the impacts of the final rule on small entities, "small entity" is defined as: (1) a small business whose parent company has fewer than 500 employees (for most affected industries); (2) a small governmental jurisdiction that is a government or a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field. It should be noted that the final rule covers more than 25 different industries. For each industry, we applied the definition of a small business provided by the Small Business Administration (SBA) at 13 CFR 121, classified by the NAICS. The SBA defines small businesses in most industries affected by the final rule as those with fewer than 500 employees. However, SBA has defined “small business” differently for a limited number of industries, either through reference to another employment cap or through the substitution of total yearly revenues in place of an employment limit. For more information on the size standards for particular industries, please refer to the regulatory impact analysis in the docket.

After considering the economic impacts of today’s final rule on small entities, we have concluded that this action will not have a significant economic impact on a substantial number of small entities. In support of this conclusion, we examined the percentage of annual revenues that compliance costs may consume if small entities must absorb all of the compliance costs associated with the final rule. Since many firms will be able to pass along some or all compliance costs to customers, actual impacts to affected firms will frequently be lower than those analyzed here.

As is mentioned in section II.A of this preamble, the final rule will set standards for new and existing 4SRB units. We identified a total of 26,832 existing engines located at commercial, industrial, and government facilities. From this initial population of 26,832 engines, 10,118 engines were excluded because the final rule will not cover engines 500 brake HP or less, emergency, or limited use engines. Of the 16,714 units remaining, 2,645 units had sufficient information to assign to model unit numbers developed during the cost analysis. These 2,645 units were linked to 834 existing facilities, owned by 153 parent companies. Sales and employment information was unavailable for 12 of the 153 parent companies. A total of 47 companies linked to engines with sufficient information to be included in the cost analysis were identified as small entities, and 13 of them own 4SRB engines. These small entities own a total of 39 4SRB units at 21 facilities.

Based on a technical support document in the docket (Docket ID Nos. OAR-2002-0059 and A-95-35) discussing the distribution of major and area sources of RICE units, we anticipate that about 60 percent of existing and future stationary RICE units will be located at area sources. This is because most RICE engines or groups of RICE engines are not major sources of HAP emissions by themselves, but may be major because they are co-located at major HAP sites. Because area sources are not covered by the NESHAP, engines located at area sources will not incur any compliance costs associated with the RICE NESHAP. Thus, 40 percent of the existing 4SRB engines that are above 500 HP and are not backup/emergency units (the only existing engines that receive costs under the rule) and 40 percent of all new RICE projected to be added in the future (above 500 HP that are not backup/emergency units) are expected to be subject to today’s action. Based on this assumption, about 16 of the 39 4SRB units identified at facilities owned by small businesses would be located at major sources.

In applying the compliance costs to our modeling for generating economic impact and small business analyses, we calculate impacts (as mentioned in Section 6 of the economic impact analysis) presuming that all 39 4SRB engines are located at major sources and hence will bear compliance costs associated with this action. We make this presumption because it is highly uncertain which facilities are major sources and which are area sources. Thus, we assume a worst case scenario that all existing 4SRB owned by small businesses are located at major sources and subject to the rule to provide a conservative or high estimate of the small business impacts. This is called an “upper bound cost scenario” because only 40 percent and not 100 percent of all RICE units are estimated to be at major sources, and therefore subject to the rule. It is reasonable to expect that the percentage of facilities owned by small businesses that are major sources would be lower than the average for the whole source category, so even fewer existing 4SRB owned by small businesses may be affected.

Under the upper bound cost scenario, there are no small firms that have compliance costs above 3 percent of firm revenues and two small firms owning 4SRB engines that have impacts between 1 and 3 percent of revenues. In addition to 12 small firms with 4SRB engines, there is one small government in the population database affected by the final rule. The costs to this city are approximately $3 per capita annually assuming their engine is affected by the final rule, less than 0.01 percent of median household income.

Based on this subset of the existing engines population, the final rule will not affect small entities owning RICE at a cost to sales ratio (CSR) greater than 3 percent, while potentially up to 15 percent (2/13) of those small entities owning RICE greater than 500 HP will have compliance costs between 1 and 3 percent of sales under an upper bound cost scenario.

Assuming the same breakdown of large and small company ownership of engines in the total population of existing engines as in the subset with parent company information identified, the Agency expects that approximately 82 (13 * 16,714/2,645) small entities in the existing population of RICE owners would have CSR between 1 and 3 percent under the upper bound cost scenario described earlier in this preamble section.

In addition, because many small entities owning RICE will not be affected because of the exclusion of engines 500 brake HP or less, the percentage of all small companies owning RICE that are affected by the final rule is even smaller. Based on the proportion of engines in the population database that are greater than 500 brake HP and are not backup units (16,714/26,832, or 62.3 percent) and assuming that small companies own the same proportion of small engines (500 brake HP or less) as they do of engines greater than 500 brake HP, the Agency estimates that 628 small companies own RICE. Of all small companies owning RICE, 13 percent (82/628) are expected to have CSR between 1 and 3 percent under the upper bound cost scenario described earlier in this preamble section and in the economic impact analysis report. If the percentage of RICE owned by small companies that are located at major sources is the same as the engine population overall (40 percent), about 5 percent of small companies owning RICE would be expected to have CSR greater than 1 percent.

The median profit margin for the industries in our analysis is approximately 2 to 7 percent. Therefore, based on this median profit margin data, it seems reasonable to consider the number of small firms with CSR above 3 percent in screening for significant economic impacts on small businesses.

This screening analysis shows that none of the small entities in the population database have impacts greater than 3 percent and two small firms that we were able to analyze with the available data have impacts between 1 and 3 percent even under the upper bound cost scenario described earlier in this preamble section and in the economic impact analysis report.

Section II.A also states that new 4SRB engines will be affected by today's action. For new sources, it can be reasonably assumed that the investment decision to purchase a new engine may be slightly altered as a result of the final rule. In fact, as shown in section 6 of the economic impact analysis, for the entire population of affected engines (approximately 20,000 new engines over a 5-year period), 2 fewer engines (0.01 percent) may be purchased due to changes in costs of the engines and market responses to the final rule. It is not possible, however, to determine future investment decisions by the small entities in the affected industries, so we cannot link these 2 engines to any one firm (small or large). Overall, it is very unlikely that a substantial number of small firms who may consider purchasing a new engine will be significantly impacted, because the decision to purchase new engines is not altered to a large extent. In addition to this consideration of costs on some firms attributable to the final rule, we note the final rule is likely to increase revenues for many small firms, including those not regulated by the final rule, due to a predictable increase in prices of natural gas in the industry. An increase in natural gas prices is expected since the compliance costs of today's action will lead to market adjustments such as decreased output, thereby leading to increased prices. Concurrent with this increase in natural gas prices will be some increase in revenues for those small firms in affected industries that are not subject to this action, for they experience revenues due to the increased natural gas prices without bearing any of the compliance costs.

Although the final rule will not have a significant economic impact on a substantial number of small entities, we nonetheless have tried to reduce the impact of the final rule on small entities. In the final rule, we are applying the minimum level of control allowed by the CAA (i.e., the MACT floor), and the minimum level of monitoring, recordkeeping, and reporting by affected sources. In addition, as mentioned section II of the preamble, new RICE units with capacities 500 brake HP or less and those that operate as emergency and limited use units are not covered by the final rule, provisions that should greatly reduce the level of small entity impacts.

D. Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, we generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with “Federal mandates” that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any 1 year. Before promulgating a rule for which a written statement is needed, section 205 of the UMRA generally requires us to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows us to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before we establish any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, we must develop a small government agency plan under section 203 of the UMRA. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

The EPA has determined that the final rule contains a Federal mandate that will result in expenditures of $100 million or more for State, local, and tribal governments, in the aggregate, or the private sector in any 1 year. Accordingly, we have prepared a written statement under section 202 of the UMRA which is summarized below. The written statement is in the docket.

Statutory Authority

As discussed previously in this preamble, the statutory authority for the final rule is section 112 of the CAA. Section 112(b) lists the 189 chemicals, compounds, or groups of chemicals deemed by Congress to be HAP. These toxic air pollutants are to be regulated by NESHAP.

Section 112(d) of the CAA directs us to develop NESHAP based on MACT which require existing and new major sources to control emissions of HAP. These NESHAP apply to all stationary RICE located at major sources of HAP emissions, however, only certain existing and new or reconstructed stationary RICE have substantive regulatory requirements.

In compliance with section 205(a), we identified and considered a reasonable number of regulatory alternatives. The regulatory alternative upon which the rule is based represents the MACT floor for stationary RICE and, as a result, it is the least costly and least burdensome alternative.

Social Costs and Benefits

The RIA prepared for the final rule, including the Agency's assessment of costs and benefits, is detailed in the "Regulatory Impact Analysis for the Final RICE NESHAP" in the docket. Based on estimated compliance costs on all sources associated with the final rule and the predicted change in prices and production in the affected industries, the estimated social costs of the final rule are $248 million (1998$).

It is estimated that 5 years after implementation of the final rule, HAP will be reduced by 5,600 tpy due to reductions in formaldehyde, acetaldehyde, acrolein, methanol and other HAP from existing and new stationary RICE. Formaldehyde and acetaldehyde have been classified as "probable human carcinogens." Acrolein, methanol and the other HAP are not considered carcinogenic, but produce several other toxic effects. The final rule will also achieve reductions in 234,400 tons of CO, approximately 167,900 tons of NO_x per year, and approximately 3,700 tons of PM per year. Exposure to CO can effect the cardiovascular system and the central nervous system. Emissions of NO_x can transform into PM, which can result in fatalities and many respiratory problems (such as asthma or bronchitis); and NO_x can also transform into ozone causing several respiratory problems to affected populations.

At the present time, the Agency cannot provide a monetary estimate for the benefits associated with the reductions in HAP and CO. For NO_x and PM, we estimated the benefits associated with health effects of PM directly and secondary PM that is formed from NOx, but were unable to quantify all categories of benefits of NO_x (particularly those associated with ecosystem and environmental effects). Unquantified benefits are noted with "B" in the estimates presented below. Total monetized benefits are approximately $280 million + B (1998$). These monetized benefits should be considered along with the many categories of benefits that we are unable to place a dollar value on to consider the total benefits of the final rule.

Future and Disproportionate Costs

The UMRA requires that we estimate, where accurate estimation is reasonably feasible, future compliance costs imposed by the rule and any disproportionate budgetary effects. Our estimates of the future compliance costs of the final rule are discussed previously in this preamble.

We do not feel that there will be any disproportionate budgetary effects of the final rule on any particular areas of the country, State or local governments, types of communities (e.g., urban, rural), or particular industry segments.

Effects on the National Economy

The UMRA requires that we estimate the effect of the final rule on the national economy. To the extent feasible, we must estimate the effect on productivity, economic growth, full employment, creation of productive jobs, and international competitiveness of the U.S. goods and services if we determine that accurate estimates are reasonably feasible and that such effect is relevant and material.

The nationwide economic impact of the final rule is presented in the "Regulatory Impact Analysis for RICE NESHAP" in the docket. This analysis provides estimates of the effect of the final rule on most of the categories mentioned above. The results of the economic impact analysis are summarized previously in this preamble.

Consultation with Government Officials

The UMRA requires that we describe the extent of our prior consultation with affected State, local, and tribal officials, summarize the officials' comments or concerns, and summarize our response to those comments or concerns. In addition, section 203 of UMRA requires that we develop a plan for informing and advising small governments that may be significantly or uniquely impacted by a proposal. Although the final rule does not affect any State, local, or tribal governments, we have consulted with State and local air pollution control officials. We also have held meetings on the final rule with many of the stakeholders from numerous individual companies, environmental groups, consultants and vendors, labor unions, and other interested parties. We have added materials to the docket to document these meetings.

In addition, we have determined that the final rule contains no regulatory requirements that might significantly or uniquely affect small governments. Therefore, today's rule is not subject to the requirements of section 203 of the UMRA.

E. Executive Order 13132: Federalism

Executive Order 13132 (64 FR 43255, August 10, 1999) requires us to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" are defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."

The final rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. The final rule primarily affects private industry, and does not impose significant economic costs on State or local governments. Thus, Executive Order

13132 does not apply to the final rule.

Although not required by Executive Order 13132, we consulted with representatives of State and local governments to enable them to provide meaningful and timely input into the development of the final rule. This consultation took place during the ICCR committee meetings where members representing State and local governments participated in developing recommendations for EPA's combustion-related rules, including the final rule. The concerns raised by representatives of State and local governments were considered during the development of the final rule.

F. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

Executive Order 13175 (65 FR 67249, November 6, 2000) requires EPA to develop an accountable process to ensure "meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications." "Policies that have tribal implications" is defined in the Executive Order to include regulations that have "substantial direct effects on one or more Indian tribes, on the relationship between the Federal government and the Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes."

The final rule does not have tribal implications. It will not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified in Executive Order 13175. Thus, Executive Order 13175 does not apply to the final rule.

G. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks

Executive Order 13045 (62 FR 19885, April 23, 1997) applies to any rule that: (1) is determined to be “economically significant” as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that we have reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, we must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives.

We interpret Executive Order 13045 as applying only to those regulatory actions that are based on health or safety risks, such that the analysis required under section 5-501 of the Executive Order has the potential to influence the regulation. The final rule is not subject to Executive Order 13045 because it is based on technology performance and not on health or safety risks.

H. Executive Order 13211: Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use

The final rule is not a "significant energy action" as defined in Executive Order 13211 (66 FR 28355, May 22, 2001) because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. The basis for this determination is provided below.

The Regulatory Impact Analysis (RIA) estimates changes in prices and production levels for all energy markets (i.e., petroleum, natural gas, electricity, and coal). We also estimate how changes in the energy markets will impact other users of energy, such as manufacturing markets and residential, industrial and commercial consumers of energy. The results of the economic impact analysis for the final rule are shown for 2005, for this is the year in which full implementation of the final rule is expected to occur. These results show that there will be minimal changes in price, if any, for most energy products affected by implementation of the final rule. Only a slight price increase (about 0.008 percent to 0.04 percent) may occur in three of the energy sectors: petroleum, electricity, and coal products nationwide; and approximately a three-tenths of one percent (i.e., 0.30 percent) change in natural gas prices. The change in energy costs associated with the final rule, however, represents only 0.08 percent of expected annual energy expenditures by residential consumers in 2005, a 0.02 percent change for transportation consumers of energy, and about 0.07 percent of energy expenditures in the commercial sector. In addition, no discernable impact on exports or imports of energy products is expected. Therefore, the impacts on energy markets and users will be relatively small nationwide as a result of implementation of the final rule. In addition, as is discussed in previous sections of this preamble, the economic analysis for RICE assumed that all existing 4SRB engines and all new engines were located at major HAP emission sources and are required to install controls. However, we anticipate that at least 60 percent of the stationary RICE will be located at area sources which are not affected by the final rule. Therefore, the economic impacts on the energy sector as described above would be reduced.

Therefore, we conclude that the final rule when implemented will not have a significant adverse effect on the supply, distribution, or use of energy.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act (NTTAA) of 1995 (Public Law No. 104-113; 15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in their regulatory and procurement activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, business practices) developed or adopted by one or more voluntary consensus bodies. The NTTAA directs EPA to provide Congress, through annual reports to OMB, with explanations when an agency does not use available and applicable voluntary consensus standards.

The final rule involves technical standards. The EPA cites the following methods in the final rule: EPA Methods 1, 1A, 3A, 3B, 4, 10 of 40 CFR part 60, appendix A; EPA Methods 320 and 323 of 40 CFR part 63, appendix A; and PS 3, and PS 4A, of 40 CFR part 60, appendix B. Consistent with the NTTAA, EPA conducted searches to identify voluntary consensus standards in addition to these EPA methods/performance specifications. No applicable voluntary consensus standards were identified for EPA Methods 1A, PS

3, and PS 4A. The search and review results have been documented and are placed in the docket (Docket ID Nos. OAR-2002-0059 and A-95-35) for the final rule.

Two voluntary consensus standards were identified as acceptable alternatives to the EPA methods specified in the final rule. One voluntary consensus standard, ASTM D6522-00 "Standard Test Method for the Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers and Process Heaters Using Portable Analyzers," is cited in the final rule as an acceptable alternative to EPA Methods 3A and 10 for identifying carbon monoxide and oxygen concentrations for the final rule when the fuel is natural gas.

The voluntary consensus standard ASTM D6348-03, "Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy," is an acceptable alternative to EPA Method 320 for formaldehyde measurement provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130.

In addition to the voluntary consensus standards EPA uses in the final rule, the search for emissions measurement procedures identified six other voluntary consensus standards. The EPA determined that five of these six standards identified for measuring emissions of the HAP or surrogates subject to emission standards in the final rule were impractical alternatives to EPA test methods/performance specifications for the purposes of the final rule. Therefore, the EPA does not intend to adopt these standards. The reasons for the determinations of these five methods are discussed below.

The voluntary consensus standard ASTM D3154-00, "Standard Method for Average Velocity in a Duct (Pitot Tube Method)," is impractical as an alternative to EPA Methods 1, 3B, and 4 for the purposes of the final rule since the standard appears to lack in quality control and quality assurance requirements. Specifically, ASTM D3154-00 does not include the following: (1) proof that openings of standard pitot tube have not plugged during the test; (2) if differential pressure gauges other than inclined manometers (*e.g.*, magnehelic gauges) are used, their calibration must be checked after each test series; and (3) the frequency and validity range for calibration of the temperature sensors.

The voluntary consensus standard, CAN/CSA Z223.2-M86(1986), "Method for the Continuous Measurement of Oxygen, Carbon Dioxide, Carbon Monoxide, Sulphur Dioxide, and Oxides of Nitrogen in Enclosed Combustion Flue Gas Streams," is unacceptable as a substitute for EPA Method 3A since it does not include quantitative specifications for measurement system performance, most notably the calibration procedures and instrument performance characteristics. The instrument performance characteristics that are provided are nonmandatory and also do not provide the same level of quality assurance as the EPA methods. For example, the zero and span/calibration drift is only checked weekly, whereas the EPA methods requires drift checks after each run.

Two very similar standards, ASTM D5835-95, "Standard Practice for Sampling Stationary Source Emissions for Automated Determination of Gas Concentration," and ISO 10396:1993, "Stationary Source Emissions: Sampling for the Automated Determination of Gas Concentrations," are impractical alternatives to EPA Method 3A for the purposes of the final rule because they lack in detail and quality assurance/quality control requirements. Specifically, these two standards do not include the following: (1) sensitivity of the method; (2) acceptable levels of analyzer calibration error; (3) acceptable levels of sampling system bias; (4) zero drift and calibration drift limits, time span, and required testing frequency; (5) a method to test the interference response of the analyzer; (6) procedures to determine the minimum sampling time per run and minimum measurement time; and (7) specifications for data recorders, in terms of resolution (all types) and recording intervals (digital and analog recorders, only).

The voluntary consensus standard ISO 12039:2001, "Stationary Source Emissions--Determination of Carbon Monoxide, Carbon Dioxide, and Oxygen--Automated Methods," is not acceptable as an alternative to EPA Method 3A. This ISO standard is similar to EPA Method 3A, but is missing some key features. In terms of sampling, the hardware required by ISO 12039:2001 does not include a 3-way calibration valve assembly or equivalent to block the sample gas flow while calibration gases are introduced. In its calibration procedures, ISO 12039:2001 only specifies a two-point calibration while EPA Method 3A specifies a three-point calibration. Also, ISO 12039:2001 does not specify performance criteria for calibration error, calibration drift, or sampling system bias tests as in the EPA method, although checks of these quality control features are required by the ISO standard.

One of the six voluntary consensus standards identified in this search, ASME/BSR MFC 13M, "Flow Measurement by Velocity Traverse" (for EPA Method 2 and possibly 1), was not available at the time the review was conducted for the purposes of the final rule because it was under development by a voluntary consensus body.

Tables 4, 5, and 6 to 40 CFR part 60, subpart ZZZZ, list the EPA testing methods included in the final rule. Under §§63.7(f) and 63.8(f) of subpart A of the General Provisions, a source may apply to EPA for permission to use alternative test methods or alternative monitoring requirements in place of any of the EPA testing methods, performance specifications, or procedures.

J. Congressional Review Act

The Congressional Review Act, 5 U.S.C. section 801 et seq., as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. The EPA will submit a report containing today's final rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the comptroller General of the United States prior to publication of the rule in the Federal Register. This action is a "major rule" as defined by 5 U.S.C. 804(2). The final rule will be effective on [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

List of Subjects in 40 CFR Part 63

Environmental protection, Administrative practice and procedure, Air pollution control, Hazardous substances, Intergovernmental relations, Reporting and recordkeeping requirements.

February 26, 2004

Dated:

/s/

____

Michael O. Leavitt,
Administrator.

For the reasons set out in the preamble, title 40, chapter I, part 63 of the Code of the Federal Regulations is amended as follows:

PART 63--[AMENDED]

1. The authority citation for part 63 continues to read as follows:

Authority: 42 U.S.C. 7401, et seq.

2. Part 63 is amended by adding subpart ZZZZ to read as follows:

Subpart ZZZZ — National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Sec.

WHAT THIS SUBPART COVERS

§63.6580 What is the purpose of subpart ZZZZ?

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

§63.6585 Am I subject to this subpart?

You are subject to this subpart if you own or operate a stationary RICE at a major source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

(a) A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

(b) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site.

§63.6590 What parts of my plant does this subpart cover?

This subpart applies to each affected source.

(a) Affected source. An affected source is any existing, new, or reconstructed stationary RICE with a site-rating of more than 500 brake horsepower located at a major source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand.

(1) Existing stationary RICE. A stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before December 19, 2002. A change in ownership of an existing stationary RICE does not make that stationary RICE a new or reconstructed stationary RICE.

(2) New stationary RICE. A stationary RICE is new if you commenced construction of the stationary RICE on or after December 19, 2002.

(3) Reconstructed stationary RICE. A stationary RICE is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after December 19, 2002.

(b) Stationary RICE subject to limited requirements.

(1) An affected source which meets either of the criteria in paragraph (b)(1)(i) through (ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of §63.6645(d).

(i) The stationary RICE is a new or reconstructed emergency stationary RICE; or

(ii) The stationary RICE is a new or reconstructed limited use stationary RICE.

(2) A new or reconstructed stationary RICE which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis must meet the initial notification requirements of §63.6645(d) and the requirements of §§63.6625(c), 63.6650(g), and 63.6655(c). These stationary RICE do not have to meet the emission limitations and operating limitations of this subpart.

(3) A stationary RICE which is an existing spark ignition 2 stroke lean burn (2SLB) stationary RICE, an existing spark ignition 4 stroke lean burn (4SLB) stationary

RICE, an existing compression ignition (CI) stationary RICE, an existing emergency stationary RICE, an existing limited use stationary RICE, or an existing stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, does not have to meet the requirements of this subpart and of subpart A of this part. No initial notification is necessary.

§63.6595 When do I have to comply with this subpart?

(a) Affected sources.

(1) If you have an existing stationary RICE, you must comply with the applicable emission limitations and operating limitations no later than [3 YEARS AFTER THE DATE THE FINAL RULE IS PUBLISHED IN THE FEDERAL REGISTER].

(2) If you start up your new or reconstructed stationary RICE before [60 DAYS AFTER THE DATE THE FINAL RULE IS PUBLISHED IN THE FEDERAL REGISTER], you must comply with the applicable emission limitations and operating limitations in this subpart no later than [60 DAYS AFTER THE DATE THE FINAL RULE IS PUBLISHED IN THE FEDERAL REGISTER].

(3) If you start up your new or reconstructed stationary RICE after [60 DAYS AFTER THE DATE THE FINAL RULE IS PUBLISHED IN THE FEDERAL REGISTER], you must comply with the applicable emission limitations and operating

limitations in this subpart upon startup of your affected source.

(b) Area sources that become major sources. If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, the compliance dates in paragraphs (b)(1) and (2) of this section apply to you.

(1) Any stationary RICE for which construction or reconstruction is commenced after the date when your area source becomes a major source of HAP must be in compliance with this subpart upon startup of your affected source.

(2) Any stationary RICE for which construction or reconstruction is commenced before your area source becomes a major source of HAP must be in compliance with this subpart within 3 years after your area source becomes a major source of HAP.

(c) If you own or operate an affected source, you must meet the applicable notification requirements in §63.6645 and in 40 CFR part 63, subpart A.

EMISSION AND OPERATING LIMITATIONS

§63.6600 What emission limitations and operating limitations must I meet?

(a) If you own or operate an existing, new, or reconstructed spark ignition 4 stroke rich burn (4SRB) stationary RICE located at a major source of HAP emissions, you must comply with the emission limitations in Table 1(a) of this subpart and the operating limitations in Table 1(b) of this subpart which apply to you.

(b) If you own or operate a new or reconstructed 2SLB or 4SLB stationary RICE or a new or reconstructed CI stationary RICE located at a major source of HAP emissions, you must comply with the emission limitations in Table 2(a) of this subpart and the operating limitations in Table 2(b) of this subpart which apply to you.

(c) If you own or operate: an existing 2SLB stationary RICE, an existing 4SLB stationary RICE, or an existing CI stationary RICE; a stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis; an emergency stationary RICE; or a limited use stationary RICE, you do not need to comply with the emission limitations in Tables 1(a) and 2(a) of this subpart or operating limitations in Tables 1(b) and 2(b) of this subpart.

GENERAL COMPLIANCE REQUIREMENTS

<u>§63.6605 What are my general requirements for complying with this subpart?</u>

(a) You must be in compliance with the emission limitations and operating limitations in this subpart that apply to you at all times, except during periods of startup, shutdown, and malfunction.

(b) If you must comply with emission limitations and operating limitations, you must operate and maintain your stationary RICE, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at all times, including during startup, shutdown, and malfunction.

TESTING AND INITIAL COMPLIANCE REQUIREMENTS

§63.6610 By what date must I conduct the initial performance tests or other initial compliance demonstrations?

(a) You must conduct the initial performance test or other initial compliance demonstrations in Table 4 of this subpart that apply to you within 180 days after the compliance date that is specified for your stationary RICE in §63.6595 and according to the provisions in §63.7(a)(2).

(b) If you commenced construction or reconstruction between December 19, 2002 and [DATE THE FINAL RULE IS PUBLISHED IN THE FEDERAL REGISTER], you must demonstrate initial compliance with either the proposed emission limitations or the promulgated emission limitations no later than [240 DAYS AFTER THE DATE THE FINAL RULE IS PUBLISHED IN THE FEDERAL REGISTER] or no later than 180 days after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

(c) If you commenced construction or reconstruction between December 19, 2002 and [DATE THE FINAL RULE IS PUBLISHED IN THE FEDERAL REGISTER], and you chose to comply with the proposed emission limitations when demonstrating initial compliance, you must conduct a second performance test to demonstrate compliance with the promulgated emission limitations by [3 YEARS AND 180 DAYS AFTER THE DATE THE FINAL RULE IS PUBLISHED IN THE FEDERAL REGISTER] or after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

(d) An owner or operator is not required to conduct an initial performance test on units for which a performance test has been previously conducted, but the test must meet all of the conditions described in paragraphs (d)(1) through (5) of this section.

(1) The test must have been conducted using the same methods specified in this subpart, and these methods must have been followed correctly.

(2) The test must not be older than 2 years.

(3) The test must be reviewed and accepted by the Administrator.

(4) Either no process or equipment changes must have

been made since the test was performed, or the owner or operator must be able to demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process or equipment changes.

(5) The test must be conducted at any load condition within plus or minus 10 percent of 100 percent load.

§63.6615 When must I conduct subsequent performance tests?

If you must comply with the emission limitations and operating limitations, you must conduct subsequent performance tests as specified in Table 3 of this subpart.

§63.6620 What performance tests and other procedures must I use?

(a) You must conduct each performance test in Tables 3 and 4 of this subpart that applies to you.

(b) Each performance test must be conducted according to the requirements in §63.7(e)(1) and under the specific conditions that this subpart specifies in Table 4. The test must be conducted at any load condition within plus or minus 10 percent of 100 percent load.

(c) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §63.7(e)(1).

(d) You must conduct three separate test runs for each performance test required in this section, as specified in

§63.7(e)(3). Each test run must last at least 1 hour.

(e) You must use Equation 1 of this section to determine compliance with the percent reduction requirement:

$$\frac{C_i - C_o}{C_i} \times 100 = R \qquad (Eq.\ 1)$$

Where:

C_i = concentration of CO or formaldehyde at the control device inlet,
C_o = concentration of CO or formaldehyde at the control device outlet, and
R = percent reduction of CO or formaldehyde emissions.

You must normalize the carbon monoxide (CO) or formaldehyde concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen, or an equivalent percent carbon dioxide (CO_2). If pollutant concentrations are to be corrected to 15 percent oxygen and CO_2 concentration is measured in lieu of oxygen concentration measurement, a CO_2 correction factor is needed. Calculate the CO_2 correction factor as described in paragraphs (e)(1) through (3) of this section.

(1) Calculate the fuel-specific F_o value for the fuel burned during the test using values obtained from Method 19, Section 5.2, and the following equation:

$$F_o = \frac{0.209\ F_d}{F_c} \qquad (Eq.\ 2)$$

Where:

F_O = Fuel factor based on the ratio of oxygen volume to the ultimate CO_2 volume produced by the fuel at zero percent excess air.
0.209 = Fraction of air that is oxygen, percent/100.
F_d = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu).
F_C = Ratio of the volume of CO_2 produced to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu).

(2) Calculate the CO_2 correction factor for correcting measurement data to 15 percent oxygen, as follows:

$$X_{CO2} = \frac{5.9}{F_o} \qquad (Eq.\ 3)$$

Where:

X_{co2} = CO_2 correction factor, percent.
5.9 = 20.9 percent O_2 - 15 percent O_2, the defined O_2 correction value, percent.

(3) Calculate the NO_x and SO_2 gas concentrations adjusted to 15 percent O_2 using CO_2 as follows:

$$C_{adj} = C_d\ \frac{X_{CO2}}{\%CO_2} \qquad (Eq.\ 4)$$

Where:

$\%CO_2$ = Measured CO_2 concentration measured, dry basis, percent.

(f) If you comply with the emission limitation to reduce CO and you are not using an oxidation catalyst, if you comply with the emission limitation to reduce formaldehyde and you are not using NSCR, or if you comply with the emission limitation to limit the concentration of formaldehyde in the stationary RICE exhaust and you are not using an oxidation catalyst or NSCR, you must petition the Administrator for operating limitations to be established during the initial performance test and continuously monitored thereafter; or for approval of no operating limitations. You must not conduct the initial performance test until after the petition has been approved by the Administrator.

(g) If you petition the Administrator for approval of operating limitations, your petition must include the information described in paragraphs (g)(1) through (5) of this section.

(1) Identification of the specific parameters you propose to use as operating limitations;

(2) A discussion of the relationship between these parameters and HAP emissions, identifying how HAP emissions change with changes in these parameters, and how limitations on these parameters will serve to limit HAP emissions;

(3) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;

(4) A discussion identifying the methods you will use to measure and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and

(5) A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these parameters.

(h) If you petition the Administrator for approval of no operating limitations, your petition must include the information described in paragraphs (h)(1) through (7) of this section.

(1) Identification of the parameters associated with operation of the stationary RICE and any emission control device which could change intentionally (e.g., operator adjustment, automatic controller adjustment, etc.) or unintentionally (e.g., wear and tear, error, etc.) on a routine basis or over time;

(2) A discussion of the relationship, if any, between changes in the parameters and changes in HAP emissions;

(3) For the parameters which could change in such a

way as to increase HAP emissions, a discussion of whether establishing limitations on the parameters would serve to limit HAP emissions;

(4) For the parameters which could change in such a way as to increase HAP emissions, a discussion of how you could establish upper and/or lower values for the parameters which would establish limits on the parameters in operating limitations;

(5) For the parameters, a discussion identifying the methods you could use to measure them and the instruments you could use to monitor them, as well as the relative accuracy and precision of the methods and instruments;

(6) For the parameters, a discussion identifying the frequency and methods for recalibrating the instruments you could use to monitor them; and

(7) A discussion of why, from your point of view, it is infeasible or unreasonable to adopt the parameters as operating limitations.

(i) The engine percent load during a performance test must be determined by documenting the calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. A written report of the average percent load determination must be included in the notification of compliance status.

The following information must be included in the written report: the engine model number, the engine manufacturer, the year of purchase, the manufacturer's site-rated brake horsepower, the ambient temperature, pressure, and humidity during the performance test, and all assumptions that were made to estimate or calculate percent load during the performance test must be clearly explained. If measurement devices such as flow meters, kilowatt meters, beta analyzers, stain gauges, etc. are used, the model number of the measurement device, and an estimate of its accurate in percentage of true value must be provided.

§63.6625 What are my monitoring, installation, operation, and maintenance requirements?

(a) If you elect to install a CEMS as specified in Table 5 of this subpart, you must install, operate, and maintain a CEMS to monitor CO and either oxygen or CO_2 at both the inlet and the outlet of the control device according to the requirements in paragraphs (a)(1) through (4) of this section.

(1) Each CEMS must be installed, operated, and maintained according to the applicable performance specifications of 40 CFR part 60, appendix B.

(2) You must conduct an initial performance evaluation and an annual relative accuracy test audit (RATA) of each

CEMS according to the requirements in §63.8 and according to the applicable performance specifications of 40 CFR part 60, appendix B as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.

(3) As specified in §63.8(c)(4)(ii), each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. You must have at least two data points, with each representing a different 15-minute period, to have a valid hour of data.

(4) The CEMS data must be reduced as specified in §63.8(g)(2) and recorded in parts per million or parts per billion (as appropriate for the applicable limitation) at 15 percent oxygen or the equivalent CO_2 concentration.

(b) If you are required to install a continuous parameter monitoring system (CPMS) as specified in Table 5 of this subpart, you must install, operate, and maintain each CPMS according to the requirements in §63.8.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must monitor and record your fuel usage daily with separate fuel meters to measure the volumetric flow rate of each fuel. In addition, you must operate your stationary RICE in a manner which reasonably minimizes HAP emissions.

§63.6630 How do I demonstrate initial compliance with the emission limitations and operating limitations?

(a) You must demonstrate initial compliance with each emission and operating limitation that applies to you according to Table 5 of this subpart.

(b) During the initial performance test, you must establish each operating limitation in Tables 1(b) and 2(b) of this subpart that applies to you.

(c) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.6645.

CONTINUOUS COMPLIANCE REQUIREMENTS

§63.6635 How do I monitor and collect data to demonstrate continuous compliance?

(a) If you must comply with emission and operating limitations, you must monitor and collect data according to this section.

(b) Except for monitor malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must monitor continuously at all times that the stationary RICE is operating.

(c) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels. You must, however, use all the valid data collected during all other periods.

§63.6640 How do I demonstrate continuous compliance with the emission limitations and operating limitations?

(a) You must demonstrate continuous compliance with each emission limitation and operating limitation in Tables 1(a) and 1(b) and Tables 2(a) and 2(b) of this subpart that apply to you according to methods specified in Table 6 of this subpart.

(b) You must report each instance in which you did not meet each emission limitation or operating limitation in Tables 1(a) and 1(b) and Tables 2(a) and 2(b) of this subpart that apply to you. These instances are deviations from the emission and operating limitations in this subpart. These deviations must be reported according to the requirements in §63.6650. If you change your catalyst, you must reestablish the values of the operating parameters measured during the initial performance test. When you reestablish the values of your operating parameters, you must also conduct a performance test to demonstrate that you are meeting the required emission limitation applicable to your stationary RICE.

(c) During periods of startup, shutdown, and malfunction, you must operate in accordance with your startup, shutdown, and malfunction plan.

(d) Consistent with §§63.6(e) and 63.7(e)(1), deviations from the emission or operating limitations that occur during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with the startup, shutdown, and malfunction plan. For new and reconstructed stationary RICE, deviations from the emission or operating limitations that occur during the first 200 hours of operation from engine startup (engine burn-in period) are not violations.

(e) You must also report each instance in which you did not meet the requirements in Table 8 of this subpart that apply to you. If you own or operate an existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing CI stationary RICE, an existing emergency stationary RICE, an existing limited use emergency stationary RICE, or an existing stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you do not need to comply with the requirements in Table 8 of this subpart. If you own or operate a new or reconstructed stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new or reconstructed emergency stationary RICE, or a new or reconstructed limited use stationary RICE, you do not need to comply with the requirements in Table 8 of this subpart, except for the initial notification requirements.

NOTIFICATIONS, REPORTS, AND RECORDS

§63.6645 What notifications must I submit and when?

(a) You must submit all of the notifications in §§63.7(b) and (c), 63.8(e), (f)(4) and (f)(6), 63.9(b) through (e), and (g) and (h) that apply to you by the dates specified.

(b) As specified in §63.9(b)(2), if you must comply with the emission and operating limitations, and you start up your stationary RICE before the effective date of this subpart, you must submit an Initial Notification not later than [120 DAYS AFTER DATE THE FINAL RULE IS PUBLISHED IN THE FEDERAL REGISTER].

(c) If you start up your new or reconstructed stationary RICE on or after the [DATE THE FINAL RULE IS

PUBLISHED IN THE FEDERAL REGISTER], you must submit an Initial Notification not later than 120 days after you become subject to this subpart.

(d) If you are required to submit an Initial Notification but are otherwise not affected by the requirements of this subpart, in accordance with §63.6590(b), your notification should include the information in §63.9(b)(2)(i) through (v), and a statement that your stationary RICE has no additional requirements and explain the basis of the exclusion (for example, that it operates exclusively as an emergency stationary RICE).

(e) If you are required to conduct a performance test, you must submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin as required in §63.7(b)(1).

(f) If you are required to conduct a performance test or other initial compliance demonstration as specified in Tables 4 and 5 to this subpart, you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii).

(1) For each initial compliance demonstration required in Table 5 of this subpart that does not include a performance test, you must submit the Notification of Compliance Status before the close of business on the 30th

day following the completion of the initial compliance demonstration.

(2) For each initial compliance demonstration required in Table 5 of this subpart that includes a performance test conducted according to the requirements in Table 4 to this subpart, you must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th day following the completion of the performance test according to §63.10(d)(2).

§63.6650 What reports must I submit and when?

(a) You must submit each report in Table 7 of this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report by the date in Table 7 of this subpart and according to the requirements in paragraphs (b)(1) through (5) of this section.

(1) The first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in §63.6595.

(2) The first Compliance report must be postmarked or

delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in §63.6595.

(3) Each subsequent Compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each stationary RICE that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6 (a)(3)(iii)(A) or 40 CFR 71.6 (a)(3)(iii)(A), you may submit the first and subsequent Compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) The Compliance report must contain the information in paragraphs (c)(1) through (6) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the accuracy of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a startup, shutdown, or malfunction during the reporting period, the compliance report must include the information in §63.10(d)(5)(i).

(5) If there are no deviations from any emission or operating limitations that apply to you, a statement that there were no deviations from the emission or operating limitations during the reporting period.

(6) If there were no periods during which the continuous monitoring system (CMS), including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement that there were no periods during which the CMS was out-of-control during the reporting period.

(d) For each deviation from an emission or operating limitation that occurs for a stationary RICE where you are not using a CMS to comply with the emission or operating limitations in this subpart, the Compliance report must contain the information in paragraphs (c)(1) through (4) of this section and the information in paragraphs (d)(1) and (2) of this section.

(1) The total operating time of the stationary RICE at which the deviation occurred during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(e) For each deviation from an emission or operating limitation occurring for a stationary RICE where you are using a CMS to comply with the emission and operating limitations in this subpart, you must include information in paragraphs (c)(1) through (4) and (e)(1) through (12) of this section.

(1) The date and time that each malfunction started and stopped.

(2) The date, time, and duration that each CMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date, time, and duration that each CMS was out-of-control, including the information in §63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of malfunction or during another period.

(5) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that

reporting period.

(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the stationary RICE at which the CMS downtime occurred during that reporting period.

(8) An identification of each parameter and pollutant (CO or formaldehyde) that was monitored at the stationary RICE.

(9) A brief description of the stationary RICE.

(10) A brief description of the CMS.

(11) The date of the latest CMS certification or audit.

(12) A description of any changes in CMS, processes, or controls since the last reporting period.

(f) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6 (a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a Compliance report pursuant to Table 7 of this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the Compliance report includes all required information concerning deviations from any emission or operating limitation in this subpart, submission of the Compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a Compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permit authority.

(g) If you are operating as a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must submit an annual report according to Table 7 of this subpart by the date specified unless the Administrator has approved a different schedule, according to the information described in paragraphs (b)(1) through (b)(5) of this section. You must report the data specified in (g)(1) through (g)(3) of this section.

(1) Fuel flow rate of each fuel and the heating values that were used in your calculations. You must also demonstrate that the percentage of heat input provided by

landfill gas or digester gas is equivalent to 10 percent or more of the total fuel consumption on an annual basis.

(2) The operating limits provided in your federally enforceable permit, and any deviations from these limits.

(3) Any problems or errors suspected with the meters.

§63.6655 What records must I keep?

(a) If you must comply with the emission and operating limitations, you must keep the records described in paragraphs (a)(1) through (a)(3), (b)(1) through (b)(3) and (c) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirement in §63.10(b)(2)(xiv).

(2) The records in §63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) Records of performance tests and performance evaluations as required in §63.10(b)(2)(viii).

(b) For each CEMS or CPMS, you must keep the records listed in paragraphs (b)(1) through (3) of this section.

(1) Records described in §63.10(b)(2)(vi) through (xi).

(2) Previous (i.e., superseded) versions of the

performance evaluation plan as required in §63.8(d)(3).

(3) Requests for alternatives to the relative accuracy test for CEMS or CPMS as required in §63.8(f)(6)(i), if applicable.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must keep the records of your daily fuel usage monitors.

(d) You must keep the records required in Table 6 of this subpart to show continuous compliance with each emission or operating limitation that applies to you.

§63.6660 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record readily accessible in hard copy or electronic form on-site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to

§63.10(b)(1). You can keep the records off-site for the remaining 3 years.

OTHER REQUIREMENTS AND INFORMATION

§63.6665 What parts of the General Provisions apply to me?

Table 8 of this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you. If you own or operate an existing 2SLB, an existing 4SLB stationary RICE, an existing CI stationary RICE, an existing stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, an existing emergency stationary RICE, or an existing limited use stationary RICE, you do not need to comply with any of the requirements of the General Provisions. If you own or operate a new stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new emergency stationary RICE, or a new limited use stationary RICE, you do not need to comply with the requirements in the General Provisions except for the initial notification requirements.

§63.6670 Who implements and enforces this subpart?

(a) This subpart is implemented and enforced by the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency (as well as the U.S. EPA) has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out whether this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are:

(1) Approval of alternatives to the non-opacity emission limitations and operating limitations in §63.6600 under §63.6(g).

(2) Approval of major alternatives to test methods under §63.7(e)(2)(ii) and (f) and as defined in §63.90.

(3) Approval of major alternatives to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of major alternatives to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

(5) Approval of a performance test which was conducted prior to the effective date of the rule, as specified in

§63.6610(b).

§63.6675 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act (CAA); in 40 CFR 63.2, the General Provisions of this part; and in this section as follows:

Area source means any stationary source of HAP that is not a major source as defined in part 63.

Associated equipment as used in this subpart and as referred to in section 112(n)(4) of the CAA, means equipment associated with an oil or natural gas exploration or production well, and includes all equipment from the well bore to the point of custody transfer, except glycol dehydration units, storage vessels with potential for flash emissions, combustion turbines, and stationary RICE.

CAA means the Clean Air Act (42 U.S.C. 7401 et seq., as amended by Public Law 101-549, 104 Stat. 2399).

Compression ignition engine means any stationary RICE in which a high boiling point liquid fuel injected into the combustion chamber ignites when the air charge has been compressed to a temperature sufficiently high for auto-ignition, including diesel engines, dual-fuel engines, and engines that are not spark ignition.

Custody transfer means the transfer of hydrocarbon liquids or natural gas: after processing and/or treatment in the producing operations, or from storage vessels or automatic transfer facilities or other such equipment, including product loading racks, to pipelines or any other forms of transportation. For the purposes of this subpart, the point at which such liquids or natural gas enters a natural gas processing plant is a point of custody transfer.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limitation or operating limitation;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation or operating limitation in this subpart during malfunction, regardless or whether or not such failure is permitted by this subpart.

(4) Fails to conform to any provision of the applicable startup, shutdown, or malfunction plan, or to satisfy the general duty to minimize emissions established by §63.6(e)(1)(i).

Diesel engine means any stationary RICE in which a high boiling point liquid fuel injected into the combustion chamber ignites when the air charge has been compressed to a temperature sufficiently high for auto-ignition. This process is also known as compression ignition.

Diesel fuel means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is fuel oil number 2.

Digester gas means any gaseous by-product of wastewater treatment typically formed through the anaerobic decomposition of organic waste materials and composed principally of methane and CO_2.

Dual-fuel engine means any stationary RICE in which a liquid fuel (typically diesel fuel) is used for compression ignition and gaseous fuel (typically natural gas) is used as the primary fuel.

Emergency stationary RICE means any stationary RICE that operates in an emergency situation. Examples include stationary RICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility is interrupted, or stationary RICE used to pump water in the case of fire or flood, etc. Emergency stationary RICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the manufacturer, the vendor, or the insurance company associated with the engine. Required testing of such units should be minimized, but there is no time limit on the use of emergency stationary RICE in emergency situations and for routine testing and maintenance. Emergency stationary RICE may also operate an additional 50 hours per year in non-emergency situations.

Four-stroke engine means any type of engine which completes the power cycle in two crankshaft revolutions, with intake and compression strokes in the first revolution and power and exhaust strokes in the second revolution.

Gaseous fuel means a material used for combustion which is in the gaseous state at standard atmospheric temperature and pressure conditions.

Glycol dehydration unit means a device in which a liquid glycol (including, but not limited to, ethylene glycol, diethylene glycol, or triethylene glycol) absorbent directly contacts a natural gas stream and absorbs water in a contact tower or absorption column (absorber). The glycol contacts and absorbs water vapor and other gas stream constituents from the natural gas and becomes "rich" glycol. This glycol is then regenerated in the glycol dehydration unit reboiler. The "lean" glycol is then recycled.

Hazardous air pollutants (HAP) means any air pollutants listed in or pursuant to section 112(b) of the CAA.

ISO standard day conditions means 288 degrees Kelvin (15 degrees Celsius), 60 percent relative humidity and 101.3 kilopascals pressure.

Landfill gas means a gaseous by-product of the land application of municipal refuse typically formed through the anaerobic decomposition of waste materials and composed principally of methane and CO_2.

Lean burn engine means any two-stroke or four-stroke spark ignited engine that does not meet the definition of a rich burn engine.

Limited use stationary RICE means any stationary RICE that operates less than 100 hours per year.

Liquid fuel means any fuel in liquid form at standard temperature and pressure, including but not limited to diesel, residual/crude oil, kerosene/naphtha (jet fuel), and gasoline.

Liquefied petroleum gas means any liquefied hydrocarbon gas obtained as a by-product in petroleum refining of natural gas production.

Major Source, as used in this subpart, shall have the same meaning as in §63.2, except that: (1) Emissions from any oil or gas exploration or production well (with its associated equipment (as defined in this section)) and emissions from any pipeline compressor station or pump station shall not be aggregated with emissions from other similar units, to determine whether such emission points or stations are major sources, even when emission points are in a contiguous area or under common control; (2) For oil and gas production facilities, emissions from processes, operations, or equipment that are not part of the same oil and gas production facility, as defined in this section, shall not be aggregated; (3) For production field facilities, only HAP emissions from glycol dehydration units, storage vessel with the potential for flash emissions, combustion turbines and reciprocating internal combustion engines shall be aggregated for a major source determination; and (4) Emissions from processes, operations, and equipment that are not part of the same natural gas transmission and storage facility, as defined in this section, shall not be aggregated.

Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

Natural gas means a naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in geologic formations beneath the Earth's surface, of which the principal constituent is methane. May be field or pipeline quality.

Non-selective catalytic reduction (NSCR) means an add-on catalytic nitrogen oxides (NO_x) control device for rich burn engines that, in a two-step reaction, promotes the conversion of excess oxygen, NO_x, CO, and volatile organic compounds (VOC) into CO_2, nitrogen, and water.

Oil and gas production facility as used in this subpart means any grouping of equipment where hydrocarbon liquids are processed, upgraded (i.e., remove impurities or other constituents to meet contract specifications), or stored prior to the point of custody transfer; or where natural gas is processed, upgraded, or stored prior to entering the natural gas transmission and storage source category. For purposes of a major source determination, facility (including a building, structure, or installation) means oil and natural gas production and processing equipment that is located within the boundaries of an individual surface site as defined in this section. Equipment that is part of a facility will typically be located within close proximity to other equipment located at the same facility. Pieces of production equipment or groupings of equipment located on different oil and gas leases, mineral fee tracts, lease tracts, subsurface or surface unit areas, surface fee tracts, surface lease tracts, or separate surface sites, whether or not connected by a road, waterway, power line or pipeline, shall not be considered part of the same facility. Examples of facilities in the oil and natural gas production source category include, but are not limited to, well sites, satellite tank batteries, central tank batteries, a compressor station that transports natural gas to a natural gas processing plant, and natural gas processing plants.

Oxidation catalyst means an add-on catalytic control device that controls CO and VOC by oxidation.

Peaking unit or engine means any standby engine intended for use during periods of high demand that are not emergencies.

Percent load means the fractional power of an engine compared to its maximum manufacturer's design capacity at engine site conditions. Percent load may range between 0 percent to above 100 percent.

Potential to emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the stationary source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. For oil and natural gas production facilities subject to subpart HH of this part, the potential to emit provisions in §63.760(a) may be used. For natural gas transmission and storage facilities subject to subpart HHH of this part, the maximum annual facility gas throughput for storage facilities may be determined according to §63.1270(a)(1) and the maximum annual throughput for transmission facilities may be determined according to §63.1270(a)(2).

Production field facility means those oil and gas production facilities located prior to the point of custody transfer.

Production well means any hole drilled in the earth from which crude oil, condensate, or field natural gas is extracted.

Propane means a colorless gas derived from petroleum and natural gas, with the molecular structure C_3H_8.

Responsible official means responsible official as defined in 40 CFR 70.2.

Rich burn engine means any four-stroke spark ignited engine where the manufacturer's recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is less than or equal to 1.1. Engines originally manufactured as rich burn engines, but modified prior to December 19, 2002 with passive emission control technology for NO_x (such as pre-combustion chambers) will be considered lean burn engines. Also, existing engines where there are no manufacturer's recommendations regarding air/fuel ratio will be considered a rich burn engine if the excess oxygen content of the exhaust at full load conditions is less than or equal to 2 percent.

Site-rated HP means the maximum manufacturer's design capacity at engine site conditions.

Spark ignition engine means a type of engine in which a compressed air/fuel mixture is ignited by a timed electric spark generated by a spark plug.

Stationary reciprocating internal combustion engine (RICE) means any reciprocating internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

Stationary RICE test cell/stand means an engine test cell/stand, as defined in subpart PPPPP of this part, that tests stationary RICE.

Stoichiometric means the theoretical air-to-fuel ratio required for complete combustion.

Storage vessel with the potential for flash emissions means any storage vessel that contains a hydrocarbon liquid with a stock tank gas-to-oil ratio equal to or greater than 0.31 cubic meters per liter and an American Petroleum Institute gravity equal to or greater than 40 degrees and an actual annual average hydrocarbon liquid throughput equal to or greater than 79,500 liters per day. Flash emissions occur when dissolved hydrocarbons in the fluid evolve from solution when the fluid pressure is reduced.

Subpart means 40 CFR part 63, subpart ZZZZ.

Surface site means any combination of one or more graded pad sites, gravel pad sites, foundations, platforms, or the immediate physical location upon which equipment is physically affixed.

Two-stroke engine means a type of engine which completes the power cycle in single crankshaft revolution by combining the intake and compression operations into one stroke and the power and exhaust operations into a second stroke. This system requires auxiliary scavenging and inherently runs lean of stoichiometric.

Tables to Subpart ZZZZ of Part 63

Table 1a to Subpart ZZZZ of Part 63. Emission Limitations for Existing, New, and Reconstructed Spark Ignition, 4SRB Stationary RICE

As stated in §§63.6600 and 63.6640, you must comply with the following emission limitations for existing, new and reconstructed 4SRB stationary RICE:

For each . . .	You must meet <u>one</u> of the following emission limitations . . .
1. 4SRB stationary RICE	a. reduce formaldehyde emissions by 76 percent or more. If you commenced construction or reconstruction between December 19, 2002 and [THE DATE THE FINAL RULE IS PUBLISHED IN THE FEDERAL REGISTER], you may reduce formaldehyde emissions by 75 percent or more until [3 YEARS AFTER THE DATE THE FINAL RULE IS PUBLISHED IN THE FEDERAL REGISTER]. OR b. limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2.

Table 1b to Subpart ZZZZ of Part 63. Operating Limitations for Existing, New, and Reconstructed Spark Ignition, 4SRB Stationary RICE

As stated in §§63.6600, 63.6630 and 63.6640, you must comply with the following operating emission limitations for existing, new and reconstructed 4SRB stationary RICE:

For each . . .	You must meet the following operating limitation . . .

1. 4SRB stationary RICE complying with the requirement to reduce formaldehyde emissions by 76 percent or more (or by 75 percent or more, if applicable) and using NSCR; or 4SRB stationary RICE complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2 and using NSCR	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than two inches of water from the pressure drop across the catalyst measured during the initial performance test; AND b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 750°F and less than or equal to 1250°F.
2. 4SRB stationary RICE complying with the requirement to reduce formaldehyde emissions by 76 percent or more (or by 75 percent, if applicable), and not using NSCR; or 4SRB stationary RICE complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2 and not using NSCR	comply with any operating limitations approved by the Administrator.

Table 2a to Subpart ZZZZ of Part 63. Emission Limitations for New and Reconstructed Lean Burn and Compression Ignition Stationary RICE

As stated in §§63.6600 and 63.6640, you must comply with the following emission limitations for new and reconstructed lean burn and new and reconstructed compression ignition stationary RICE:

For each . . .	**You must meet the following emission limitation . . .**

1. 2SLB stationary RICE	a. reduce CO emissions by 58 percent or more; OR b. limit concentration of formaldehyde in the stationary RICE exhaust to 12 ppmvd or less at 15 percent O_2. If you commenced construction or reconstruction between December 19, 2002 and [DATE THE FINAL RULE IS PUBLISHED IN THE FEDERAL REGISTER], you may limit concentration of formaldehyde to 17 ppmvd or less at 15 percent O_2 until [3 YEARS AFTER THE DATE THE FINAL RULE IS PUBLISHED IN THE FEDERAL REGISTER].
2. 4SLB stationary RICE	a. reduce CO emissions by 93 percent or more; OR b. limit concentration of formaldehyde in the stationary RICE exhaust to 14 ppmvd or less at 15 percent O_2.
3. CI stationary RICE	a. reduce CO emissions by 70 percent or more; OR b. limit concentration of formaldehyde in the stationary RICE exhaust to 580 ppbvd or less at 15 percent O_2.

Table 2b to Subpart ZZZZ of Part 63. Operating Limitations for New and Reconstructed Lean Burn and Compression Ignition Stationary RICE

As stated in §§63.6600, 63.6630, and 63.6640, you must comply with the following operating limitations for new and reconstructed lean burn and new and reconstructed compression ignition stationary RICE:

For each . . .	You must meet the following operating limitation . . .
1. 2SLB and 4SLB stationary RICE and CI stationary RICE complying with the requirement to reduce CO emissions and using an oxidation catalyst; or 2SLB and 4SLB stationary RICE and CI stationary RICE complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and using an oxidation catalyst	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than two inches of water from the pressure drop across the catalyst that was measured during the initial performance test; AND b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 450°F and less than or equal to 1350°F.
2. 2SLB and 4SLB stationary RICE and CI stationary RICE complying with the requirement to reduce CO emissions and not using an oxidation catalyst; or 2SLB and 4SLB stationary RICE and CI stationary RICE complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and not using an oxidation catalyst	comply with any operating limitations approved by the Administrator.

Table 3 to Subpart ZZZZ of Part 63. Subsequent Performance Tests

As stated in §§63.6615 and 63.6620, you must comply with the following subsequent performance test requirements:

For each . . .	Complying with the requirement to . . .	You must . . .
1. 2SLB and 4SLB stationary RICE and CI stationary RICE	reduce CO emissions and not using a CEMS	conduct subsequent performance tests semiannually[a].
2. 4SRB stationary RICE with a brake horsepower $5,000	reduce formaldehyde emissions	conduct subsequent performance tests semiannually[a].
3. stationary RICE (all stationary RICE subcategories and all brake horsepower ratings)	limit the concentration of formaldehyde in the stationary RICE exhaust	conduct subsequent performance tests semiannually[a].

a. After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.

Table 4 to Subpart ZZZZ of Part 63. Requirements for Performance Tests

As stated in §§63.6610, 63.6620, and 63.6640, you must comply with the following requirements for performance tests:

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .

1. 2SLB and 4SLB stationary RICE and CI stationary RICE	a. reduce CO emissions	i. measure the O_2 at the inlet and outlet of the control device AND	(1) portable CO and O_2 analyzer	(a) using ASTM D6522-00[a]. Measurements to determine O_2 must be made at the same time as the measurements for CO concentration.
		ii. measure the CO at the inlet and the outlet of the control device	(1) portable CO and O_2 analyzer	(a) using ASTM D6522-00[a]. The CO concentration must be at 15 percent O_2, dry basis.
2. 4SRB stationary RICE	a. reduce formaldehyde emissions	i. select the sampling port location and the number of traverse points AND	(1) Method 1 or 1A of 40 CFR part 60, appendix A §63.7(d)(1)(i)	(a) sampling sites must be located at the inlet and outlet of the control device.

ii. measure O_2 at the inlet and outlet of the control device AND	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A	(a) measurements to determine O_2 concentration must be made at the same time as the measurements for formaldehyde concentration.
iii. measure moisture content at the inlet and outlet of the control device AND	(1) Method 4 of 40 CFR part 60, appendix A, or Test Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03	(a) measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde concentration.

		iv. measure formaldehyde at the inlet and the outlet of the control device	(1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03[b], provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130.	(a) formaldehyde concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
3. stationary RICE	a. limit the concentration of formaldehyde in the stationary RICE exhaust	i. select the sampling port location and the number of traverse points AND	(1) Method 1 or 1A of 40 CFR part 60, appendix A §63.7(d)(1)(i)	(a) if using a control device, the sampling site must be located at the outlet of the control device.

	ii. determine the O_2 concentra-tion of the station-ary RICE exhaust at the sampling port location AND	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A	(a) measurements to determine O_2 concentra-tion must be made at the same time and location as the measurements for formaldehyde concentra-tion.
	iii. measure moisture content of the station-ary RICE exhaust at the sampling port location AND	(1) Method 4 of 40 CFR part 60, appendix A, or Test Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03	(a) measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde concentra-tion.

		iv. measure formaldehyde at the exhaust of the stationary RICE	(1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03[b], provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130.	(a) Formaldehyde concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.

[a] You may also use Methods 3A and 10 as options to ASTM-D6522-00. You may obtain a copy of ASTM-D6522-00 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohochen, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

[b] You may obtain a copy of ASTM-D6348-03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohochen, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

Table 5 to Subpart ZZZZ of Part 63. Initial Compliance with Emission Limitations and Operating Limitations

As stated in §§63.6625 and 63.6630, you must initially comply with the emission and operating limitations as required by the following:

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
1. 2SLB and 4SLB stationary RICE and CI stationary RICE	a. reduce CO emissions and using oxidation catalyst, and using a CPMS	i. the average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; AND ii. you have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); AND iii. you have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.

2. 2SLB and 4SLB stationary RICE and CI stationary RICE	a. reduce CO emissions and not using oxidation catalyst	i. the average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction. AND ii. you have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); AND iii. you have recorded the approved operating parameters (if any) during the initial performance test.
3. 2SLB and 4SLB stationary RICE and CI stationary RICE	a. reduce CO emissions, and using a CEMS	i. you have installed a CEMS to continuously monitor CO and either O_2 or CO_2 at both the inlet and outlet of the oxidation catalyst according to the requirements in §63.6625(a); AND ii. you have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; AND iii. the average reduction of CO calculated using §63.6620 equals or exceeds the required percent reduction. The initial test comprises the first 4-hour

		period after successful validation of the CEMS. Compliance is based on the average percent reduction achieved during the 4-hour period.
4. 4SRB stationary RICE	a. reduce formaldehyde emissions and using NSCR	i. the average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction; AND ii. you have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); AND iii. you have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.

5. 4SRB stationary RICE	a. reduce formaldehyde emissions and not using NSCR	i. the average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction. AND ii. you have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); AND iii. you have recorded the approved operating parameters (if any) during the initial performance test.
6. stationary RICE	a. limit the concentration of formaldehyde in the stationary RICE exhaust and using oxidation catalyst or NSCR	i. the average formaldehyde concentration, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde emission limitation. AND ii. you have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); AND iii. you have recorded the catalyst pressure drop and catalyst inlet temperature during the initial

		performance test.
7. stationary RICE	a. limit the concentration of formaldehyde in the stationary RICE exhaust and not using oxidation catalyst or NSCR	i. the average formaldehyde concentration, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde emission limitation. AND ii. you have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); AND iii. you have recorded the approved operating parameters (if any) during the initial performance test.

Table 6 to Subpart ZZZZ of Part 63. Continuous Compliance with Emission Limitations and Operating Limitations

As stated in §63.6640, you must continuously comply with the emissions and operating limitations as required by the following:

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
1. 2SLB and 4SLB stationary RICE and CI stationary RICE	a. reduce CO emissions and using an oxidation catalyst, and using a CPMS	i. conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved[a];

		AND ii. collecting the catalyst inlet temperature data according to §63.6625(b); AND iii. reducing these data to 4-hour rolling averages; AND iv. maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature established during the initial performance test; AND v. measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
2. 2SLB and 4SLB stationary RICE and CI stationary RICE	a. reduce CO emissions and not using an oxidation catalyst, and using a CPMS	i. conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved[a]; AND ii. collecting the approved operating parameter (if any) data according to §63.6625(b); AND

		iii. reducing these data to 4-hour rolling averages; AND iv. maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
3. 2SLB and 4SLB stationary RICE and CI stationary RICE	a. reduce CO emissions and using a CEMS	i. collecting the monitoring data according to §63.6625(a), reducing the measurements to 1-hour averages, calculating the percent reduction of CO emissions according to §63.6620; AND ii. demonstrating that the catalyst achieves the required percent reduction of CO emissions over the 4-hour averaging period; AND iii. conducting an annual RATA of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B, as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.
4. 4SRB stationary RICE	a. reduce formaldehyde emissions and using NSCR	i. collecting the catalyst inlet temperature data according to §63.6625(b); AND ii. reducing these data to

		4-hour rolling averages; AND iii. maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature established during the performance test; AND iv. measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
5. 4SRB stationary RICE	a. reduce formaldehyde emissions and not using NSCR	i. collecting the approved operating parameter (if any) data according to §63.6625(b); AND ii. reducing these data to 4-hour rolling averages; AND iii. maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
6. 4SRB stationary RICE with a brake horsepower	reduce formaldehyde emissions	conducting semiannual performance tests for formaldehyde to demonstrate that the required formaldehyde percent

$5,000		reduction is achieved[a].
7. stationary RICE	limit the concentration of formaldehyde in the stationary RICE exhaust and using oxidation catalyst or NSCR	i. conducting semiannual performance tests for formaldehyde to demonstrate that your emissions remain at or below the formaldehyde concentration limit[a]. AND ii. collecting the catalyst inlet temperature data according to §63.6625(b); AND iii. reducing these data to 4-hour rolling averages; AND iv. maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature established during the initial performance test; AND v. measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
8. stationary RICE	limit the concentration of formaldehyde in the	i. conducting semiannual performance tests for formaldehyde to demonstrate that your emissions remain at or below the

	stationary RICE exhaust and not using oxidation catalyst or NSCR	formaldehyde concentration limit[a]. AND ii. collecting the approved operating parameter (if any) data according to §63.6625(b); AND ii. reducing these data to 4-hour rolling averages; AND iii. maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.

[a]After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.

Table 7 to Subpart ZZZZ of Part 63. Requirements for Reports

As stated in §63.6650, you must comply with the following requirements for reports:

You must submit a(n)	The report must contain ...	You must submit the report ...
1. compliance report	a. if there are no deviations from any emission limitations or operating limitations that apply to you, a statement that there were no deviations	i. semiannually according to the requirements in §63.6650(b).

	from the emission limitations or operating limitations during the reporting period. If there were no periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement that there were not periods during which the CMS was out-of-control during the reporting period.	
	OR	
	b. if you had a deviation from any emission limitation or operating limitation during the reporting period, the information in §63.6650(d). If there were periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), the information in §63.6650(e).	i. semiannually according to the requirements in §63.6650(b).
	OR	
	c. if you had a startup, shutdown or malfunction during the reporting period, the information in §63.10(d)(5)(i).	i. semiannually according to the requirements in §63.6650(b).

2. an immediate startup, shutdown, and malfunction report if actions addressing the startup, shutdown, or malfunction were inconsistent with your startup, shutdown, or malfunction plan during the reporting period	a. actions taken for the event. AND	i. by fax or telephone within 2 working days after starting actions inconsistent with the plan.
	b. the information in §63.10(d)(5)(ii).	i. by letter within 7 working days after the end of the event unless you have made alternative arrangements with the permitting authorities. (§63.10(d)(5)(ii))
3. Report	a. the fuel flow rate of each fuel and the heating values that were used in your calculations, and you must demonstrate that the percentage of heat input provided by landfill gas or digester gas, is equivalent to 10 percent or more of the gross heat input on an annual basis. AND	annually, according to the requirements in §63.6650.

b. the operating limits provided in your federally enforceable permit, and any deviations from these limits.

AND

c. any problems or errors suspected with the meters

Table 8 to Subpart ZZZZ of Part 63. Applicability of General Provisions to Subpart ZZZZ

As stated in §63.6665, you must comply with the following applicable general provisions:

General Provisions Citation	Subject of Citation	Applies to Subpart	Explanation
§63.1	General applicability of the General Provisions	Yes	
§63.2	Definitions	Yes	Additional terms defined in §63.6675.
§63.3	Units and abbreviations	Yes	
§63.4	Prohibited activities and circumvention	Yes	
§63.5	Construction and reconstruction	Yes	
§63.6(a)	Applicability	Yes	
§63.6(b)(1)-(4)	Compliance dates for new and reconstructed sources	Yes	
§63.6(b)(5)	Notification	Yes	

§63.6(b)(6)	[Reserved]	
§63.6(b)(7)	Compliance dates for new and reconstructed area sources that become major sources	Yes
§63.6(c)(1)-(2)	Compliance dates for existing sources	Yes
§63.6(c)(3)-(4)	[Reserved]	
§63.6(c)(5)	Compliance dates for existing area sources that become major sources	Yes
§63.6(d)	[Reserved]	
§63.6(e)(1)	Operation and maintenance	Yes
§63.6(e)(2)	[Reserved]	
§63.6(e)(3)	Startup, shutdown, and malfunction plan	Yes
§63.6(f)(1)	Applicability of standards except during startup shutdown malfunction (SSM)	Yes
§63.6(f)(2)	Methods for determining compliance	Yes
§63.6(f)(3)	Finding of compliance	Yes
§63.6(g)(1)-(3)	Use of alternate standard	Yes

§63.6(h)	Opacity and visible emission standards	No	Subpart ZZZZ does not contain opacity or visible emission standards.
§63.6(i)	Compliance extension procedures and criteria	Yes	
§63.6(j)	Presidential compliance exemption	Yes	
§63.7(a)(1)-(2)	Performance test dates	Yes	Subpart ZZZZ contains performance test dates at §63.6610.
§63.7(a)(3)	CAA section 114 authority	Yes	
§63.7(b)(1)	Notification of performance test	Yes	
§63.7(b)(2)	Notification of rescheduling	Yes	
§63.7(c)	Quality assurance/test plan	Yes	
§63.7(d)	Testing facilities	Yes	
§63.7(e)(1)	Conditions for conducting performance tests	Yes	
§63.7(e)(2)	Conduct of performance tests and reduction of data	Yes	Subpart ZZZZ specifies test methods at §63.6620.
§63.7(e)(3)	Test run duration	Yes	

§63.7(e)(4)	Administrator may require other testing under section 114 of the CAA	Yes	
§63.7(f)	Alternative test method provisions	Yes	
§63.7(g)	Performance test data analysis, recordkeeping, and reporting	Yes	
§63.7(h)	Waiver of tests	Yes	
§63.8(a)(1)	Applicability of monitoring requirements	Yes	Subpart ZZZZ contains specific requirements for monitoring at §63.6625.
§63.8(a)(2)	Performance specifications	Yes	
§63.8(a)(3)	[Reserved]		
§63.8(a)(4)	Monitoring for control devices	No	
§63.8(b)(1)	Monitoring	Yes	
§63.8(b)(2)-(3)	Multiple effluents and multiple monitoring systems	Yes	
§63.8(c)(1)	Monitoring system operation and maintenance	Yes	
§63.8(c)(1)(i)	Routine and predictable SSM	Yes	
§63.8(c)(1)(ii)	SSM not in Startup Shutdown Malfunction Plan	Yes	

§63.8(c)(1)(iii)	Compliance with operation and maintenance requirements	Yes	
§63.8(c)(2)-(3)	Monitoring system installation	Yes	
§63.8(c)(4)	Continuous monitoring system (CMS) requirements	Yes	Except that subpart ZZZZ does not require Continuous Opacity Monitoring System (COMS).
§63.8(c)(5)	COMS minimum procedures	No	Subpart ZZZZ does not require COMS.
§63.8(c)(6)-(8)	CMS requirements	Yes	Except that subpart ZZZZ does not require COMS.
§63.8(d)	CMS quality control	Yes	
§63.8(e)	CMS performance evaluation	Yes	Except for §63.8(e)(5)(ii), which applies to COMS.
§63.8(f)(1)-(5)	Alternative monitoring method	Yes	
§63.8(f)(6)	Alternative to relative accuracy test	Yes	

§63.8(g)	Data reduction	Yes	Except that provisions for COMS are not applicable. Averaging periods for demonstrating compliance are specified at §§63.6635 and 63.6640.
§63.9(a)	Applicability and State delegation of notification requirements	Yes	
§63.9(b)(1)-(5)	Initial notifications	Yes	Except that §63.9(b)(3) is reserved.
§63.9(c)	Request for compliance extension	Yes	
§63.9(d)	Notification of special compliance requirements for new sources	Yes	
§63.9(e)	Notification of performance test	Yes	
§63.9(f)	Notification of visible emission (VE)/opacity test	No	Subpart ZZZZ does not contain opacity or VE standards.
§63.9(g)(1)	Notification of performance evaluation	Yes	
§63.9(g)(2)	Notification of use of COMS data	No	Subpart ZZZZ does not contain opacity or VE standards.

§63.9(g)(3)	Notification that criterion for alternative to RATA is exceeded	Yes	If alternative is in use.
§63.9(h)(1)-(6)	Notification of compliance status	Yes	Except that notifications for sources using a CEMS are due 30 days after completion of performance evaluations. §63.9(h)(4) is reserved.
§63.9(i)	Adjustment of submittal deadlines	Yes	
§63.9(j)	Change in previous information	Yes	
§63.10(a)	Administrative provisions for record keeping/reporting	Yes	
§63.10(b)(1)	Record retention	Yes	
§63.10(b)(2)(i)-(v)	Records related to SSM	Yes	
§63.10(b)(2)(vi)-(xi)	Records	Yes	
§63.10(b)(2)(xii)	Record when under waiver	Yes	
§63.10(b)(2)(xiii)	Records when using alternative to RATA	Yes	For CO standard if using RATA alternative.
§63.10(b)(2)(xiv)	Records of supporting documentation	Yes	
§63.10(b)(3)	Records of applicability determination	Yes	

§63.10(c)	Additional records for sources using CEMS	Yes	Except that §63.10(c)(2)-(4) and (9) are reserved.
§63.10(d)(1)	General reporting requirements	Yes	
§63.10(d)(2)	Report of performance test results	Yes	
§63.10(d)(3)	Reporting opacity or VE observations	No	Subpart ZZZZ does not contain opacity or VE standards.
§63.10(d)(4)	Progress reports	Yes	
§63.10(d)(5)	Startup, shutdown, and malfunction reports	Yes	
§63.10(e)(1) and (2)(i)	Additional CMS reports	Yes	
§63.10(e)(2)(ii)	COMS-related report	No	Subpart ZZZZ does not require COMS.
§63.10(e)(3)	Excess emission and parameter exceedances reports	Yes	Except that §63.10(e)(3)(i)(C) is reserved.
§63.10(e)(4)	Reporting COMS data	No	Subpart ZZZZ does not require COMS.
§63.10(f)	Waiver for recordkeeping/ reporting	Yes	
§63.11	Flares	No	
§63.12	State authority and delegations	Yes	
§63.13	Addresses	Yes	

§63.14	Incorporation by reference	Yes
§63.15	Availability of information	Yes